THE

FARMER'S MAGAZINE:

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(No. XXV.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Account of the Improvements of the late Earl of Findlater.

SIR,

NEXT to the satisfaction of performing in person great or useful actions, there is nothing that can furnish the mind with more real pleasure, than to be the means of recording the great or useful actions of others. Under that impression, I was extremely desirous of procuring authentic information of the plan of improvement adopted by the late Lord Findlater, to whose exertions and example, a very considerable district in the northern part of the island owes much of its prosperity. Many persons have heard that his Lordship considerably improved agriculture in his own immediate neighbourhood, though perhaps not aware that he had set about it in so very judicious a manner, as appears to be the case, from the following answers to some queries, transmitted by me for the express purpose of obtaining authentic intelligence regarding the system he pursued. The accuracy of the facts therein stated may be depended on; and I feel much satisfaction in being the means of preserving them in your valuable repository. I remain, SIR,

Your obedient servant,

JOHN SINCLAIR.

Charlotte Square, Edin. 9th Nov. 1805.

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Query 1. What was the ſtate of the country when the late Lord Findlater began his improvements?

When his Lordſhip took up his reſidence at Banff Caſtle, in or about the year 1753, there were no roads made in Banffſhire, (as I have been informed); no turnips nor potatoes reared in the field; no graſs ſeeds ſown, nor encloſures made, excepting, to a very ſmall extent, about the manſion houſes of *ſome* of the proprietors; no tradeſmen who could make huſbandry utenſils, except of the worſt kind; nor any carts, except thoſe from Morayſhire, made of birch wood, without a bit of iron in them, the higheſt price of which, at that time, was 6s. 8d.;—every thing elſe in proportion.

Q. 2. What ſteps did his Lordſhip purſue to improve that ſtate?

His Lordſhip took into his own poſſeſſion a farm near Banff Caſtle, (Craigherbs); got an overſeer from the Lothians; commiſſioned the beſt huſbandry utenſils from Leith and Newcaſtle; encloſed the farm on a regular plan; built convenient houſes thereon; fallowed, limed, and laid down part of it in turnips, and part of it in graſs ſeeds, with great ſucceſs. At the ſame time, he ſent the ſons of ſome farmers to Berwickſhire, to ſtudy agriculture under the patronage of Lord Kaimes, and other farmers of eminence there; with the aſſurance of getting advantageous leaſes, if they returned with favourable characters from thoſe to whom they had been recommended. One of theſe young men, *John Wilſon at Brangan*, got a long leaſe, and has done great ſervice to the eſtate by his ſkill and induſtry, and the example he has given to his neighbours, by which they have profited. His Lordſhip alſo ſent, at his own expence, ſome young wrights, maſons, ſlaters, &c. to Leith, Hopeton Houſe, &c. to improve themſelves in their different lines; and ſeveral of them returned very accompliſhed tradeſmen.

His Lordſhip got his friend General Watſon, then Quarter-Maſter-General for Scotland, to mark out a line of road from Banff to Cullen, which was ſoon executed. Unluckily, the General being a diſciple of Wade's, was partial to ſtraight lines, without regard to ſteepneſs.

Being of opinion, however, that the improvement of a large eſtate could not be carried to great extent without the aid of improving tenants, his Lordſhip picked out three or four intelligent men, to whom he granted leaſes at moderate rents, for twice nineteen years and a life, on condition of their building convenient farm houſes and offices, and encloſing the whole within a limited time, without any allowance at the expiry of the leaſe; alſo of fallowing, liming, ſowing turnips and graſs ſeeds, &c.

&c. according to the moſt approved ſyſtem. Theſe tenants were ſo judiciouſly choſen, that they went on rapidly in fulfilling the conditions of their leaſes; and their example had an incredible effect on neighbouring tenants, who had ſhort leaſes, and who had little faith in the improvements made by the proprietor, till they ſaw them followed out with ſucceſs by their neighbours. Three of theſe long leaſes are now poſſeſſed by the ſons of the original tackſmen, for their lives. One of the leaſes, which fell about three years ago, was let for more than four times the original rent, excluſive of a brick work upon it.

His Lordſhip, about the year 1758 or 1759, took into his own poſſeſſion another and larger farm (Colleonard). He had ſucceſſively got overſeers from the Lothians, Berwickſhire, Northumberland, and Norfolk. The improvements on the laſt farm were at firſt carried on under the direction of a Berwickſhire man, who ſoon died. He was ſucceeded by a Norfolk man (I believe) of great knowledge and activity in farming, who carried on the improvements under his Lordſhip's direction, as a ſort of ſchool for learning the buſineſs, to which the ſons of farmers, not only on his own eſtate, but alſo from other eſtates, were invited to aſſiſt at the different operations carrying on there, ſuch as draining, ploughing, ſowing, and hoeing turnips, ſowing graſs ſeeds, cutting and making hay, &c. Some of the young men on his own eſtate, who diſtinguiſhed themſelves, got favourable leaſes, and contributed to ſpread the ſpirit for improved huſbandry over his Lordſhip's and the neighbouring eſtates.

The plan adopted for encouraging agriculture did not fail in any inſtance, though ſome of the people whom his Lordſhip was at the expence of breeding up to the buſineſs did not ſucceed ſo well as others.

The good effects of the new ſyſtem ſoon appeared. The improved farms, in a ſhort time, produced as much, or more grain, and of a better quality, than they did by the former management; and, at the ſame time, afforded turnips, graſs, and hay, ſufficient to maintain a good ſtock of cattle and horſes. Before the improvements were begun, the grounds were conſtantly in corn crops, all the way from Cullen to Banff; and the cattle, when the ſeed-time was finiſhed, were ſent to a diſtant grazing, (a few cows excepted); and the farmer's time, betwixt ſeed-time and harveſt, was totally occupied in providing fuel (peat) for the winter. That period, however, ſoon became a very buſy one, for fallowing, ſowing, and hoeing turnips, making hay, &c.; and many tenants on the coaſt uſed coal, partly, in place of peats, and thoſe who continued to uſe peats chiefly, by the great improvement of their horſes and carts, were enabled

to bring home, in one day, as many as they could have done formerly, *in creels*, in a whole week.

The population on the farms is not thought to be increased, but it is believed to be much augmented in towns and villages.

The farmers in general, by their industry and skill, are getting wealthy; and it is obvious, by taking a view of many of the farms, that the system of agriculture, and rotation of crops, are as good as are met with in Northumberland or Norfolk.

FOR THE FARMER'S MAGAZINE.

Plan and Profile of a Plough that will turn the Furrow to either side, intended for Ploughing along the Sides of Steep Hills, where the Furrow must always be turned to the Lower Side.—Communicated by Mr ANDREW GRAY.

FIGURE I.

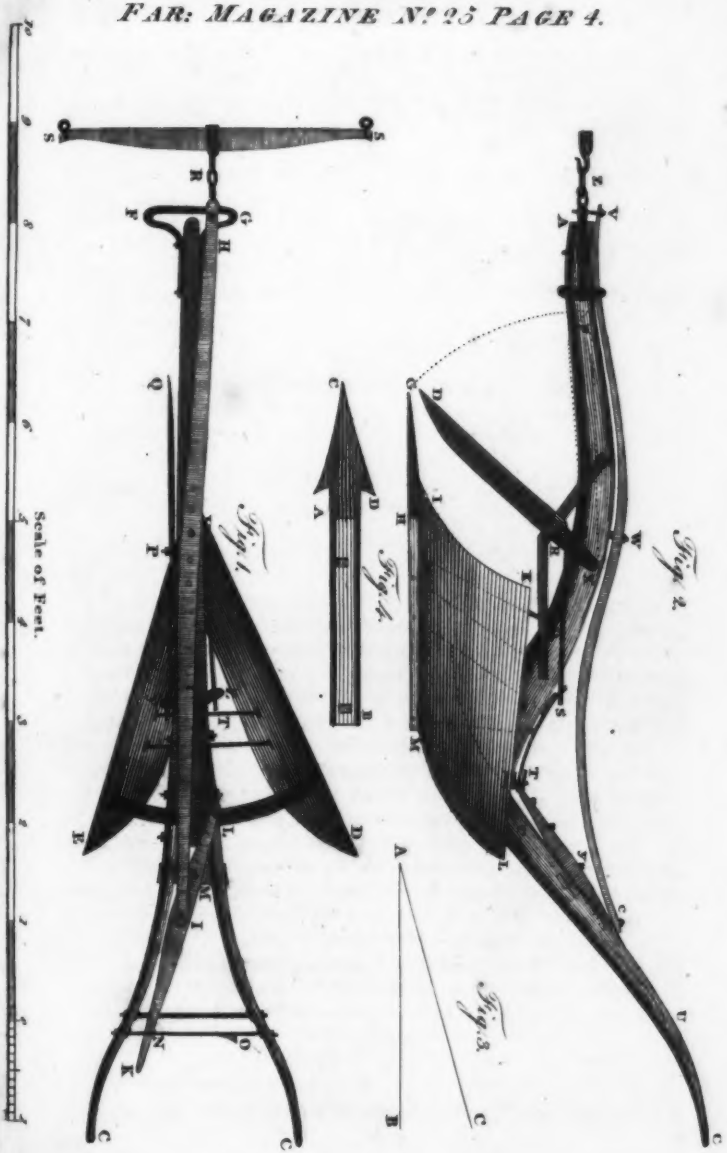
A B, The beam, to which all the other parts of the plough are fixed.

C C, The two stilts or handles, fastened to the beam at B.

D E, The two mould-boards, mitred together at V. It is necessary, in order to turn over the land, that they be curved or twisted, so that the angle which the upper side of the board makes with the under side, is about 17 or 18 degrees, both being straight. (See Fig. 3., where A B represents the lower side, and A C the upper side of the right hand mould-board.) The angle between them at the sole ought to be the same with that of the land side and mould-board sole of a common plough, which, in general, is from 14 to 16 degrees; so the two mould-boards will make an angle of from 14 to 16 degrees below, and from 48 to 52 degrees above. The mould-boards are kept in their proper angle, and, at same time, strengthened against the pressure of the earth in ploughing, by an iron segment, B L, fixed in them near their upper side, and by two iron rods at T below.

F G, The bridle or muzzle fastened to the beam at A, by an iron bolt going through its arms and the end of the beam. In ploughing along the sides of steep hills, the horses may not find sure footing on the unploughed land, but slide into the furrow: with this plough, they must all go in the furrow; therefore the bridle is made straight before, and without any notches; so that the horse-tree S S may be moved from either side, by the chain R fastened on it, sliding from side to side, on the fore part of the bridle, at every turning of the plough.

H I and K L, Two levers. H I turns on an iron bolt fixed in the



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J. Bauge sc.

the beam at V as its centre; and K L turns on a bolt at M, in a croſs piece of wood faſtened between the two ſtilts. By them, the mould-boards, which turn on a bolt at W, are eaſily ſhifted from ſide to ſide; the coulters raiſed or put down; and the chain R, by which the plough is drawn, ſhifted on the bridle, and kept in the proper line of draught. The lever K being at the ploughman's hand, when puſhed from N to O, the end I of the other lever, being connected with it, is carried the ſame way; and as this lever H I turns on a bolt at V, its other end H moves to the oppoſite ſide of the beam, and ſlides the chain R from G to F on the bridle; by this means the horſe-tree S S is placed in the proper line of draught. At ſame time, by the lever K L turning on a bolt at M, and the end at L going upon a bolt fixed in the middle of the iron ſegment B, the mould-boards are ſhifted to the left hand; the mould-board D becoming the land ſide of the plough, and the board E the furrow ſide, alternately, as the boards are moved by the lever K L to the right or left hand. The coulters are alſo ſhifted; the one up clear of the furrow, and the other down in its proper place for cutting the land. (See the two coulters D E and F E, Fig. 2.) This is done by an iron plate having three branches, as B Y Z, turning at U on an iron bolt in the upper ſide of the beam. In the longeſt arm of the plate is a ſlit that goes upon the bolt in the iron ſegment B; and when the mould-boards and ſegment are ſhifted by the lever K L either to the right or left, the arm (of the plate) B is moved by it from ſide to ſide, the plate having liberty to turn on the bolt at U; the ends Y and Z move in different directions. The left hand coulter P being connected with the plate at Y by an iron rod, and the right hand coulter connected in ſame way at Z; as the plate is turned from ſide to ſide by the lever, they riſe or fall; the coulters, as P Q, turning on an iron bolt that goes through the beam. When the lever K L is puſhed from N to O, it is held faſt by means of a knee or catch faſtened on an iron rod at N and O. This rod turns on its pivots in the ſtilts, and requires to be turned round a little when the lever is ſhifted, to clear it of the catch at N; and when the lever is puſhed to O, the catch on the rod falls back, and keeps it faſt. By means of theſe catches, the ſhifting parts of the plough are kept ſteady, and eaſily ſhifted and kept in any poſition by the levers. For example, if the lever K be faſtened in the middle between the ſtilts, the plough will turn a furrow to each ſide at the ſame time.

FIGURE II.

Profile of the ſame Plough.

A B repreſents the beam.

C the ſtilts or handles faſtened to the beam. (See Fig. 1. C C.)

D E and F E the two coulters. D E is the left hand coulter in its poſition for ploughing; and F E repreſents the right hand coulter, by the dotted lines raiſed up to the ſide of the beam, clear of the ground.

G H is the ſock fixed upon the head M N. (See Fig. 4. where A B is the head, and C B the ſock.)

I K is the fore edge where the mould-boards meet, and are mitred together. And

L M their hindmoſt edge. When the mould-boards are ſhifted to either ſide, they turn on an iron bolt N O, which goes through the head and beam. This bolt has a head at N, which is ſunk into the head of the plough, and is ſecured on the upper ſide of the beam by a ſcrew nut. In order that the mould-boards may ſhift to the proper angle, and either of them become the land ſide of the plough, it will be neceſſary that the upper corners of the head H M be ſloped off for about one inch and a fourth down; the lower edge of the mould-board being equally ſloped off on the inſide; ſo that when the mould-boards are ſet, the land ſide mould-board claps cloſe in to the ſlope on the upper ſide of the head. By this means, earth or ſmall ſtones are prevented from getting in between the mould-board and head; and it alſo makes them have one uniform ſurface, without any projection on that ſide, for about ſix or ſeven inches up.

P P, An angle plate of iron fixed on each ſide of the beam, for holding the coulters ſteady. It has an opening outwards at R, that receives the coulter D E when let down, and keeps it to the proper angle for cutting the land: And when the coulter F E is let down, it is ſecured by going into an opening in the iron plate fixed on the right-hand ſide of the beam.

Q Z, The bridle and horſe-tree by which the plough is drawn. The bridle is fixed to the beam at A by two iron bolts, and turns on the bolt at Q. There are ſeveral holes in the croſs part of the bridle for the hinder bolt to paſs through, by which the draught may be fixed either above or below the beam, ſo as to make the plough go deep or ſhallow in the ground.

T U and E V, The two levers deſcribed in Fig. 1. for turning the ſhifting parts of the plough.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Remarks on the Agriculture of Ayrſhire.

SIR,

Having lately made an excurſion through a conſiderable part of Ayrſhire, I beg leave to offer a few remarks on the general

ral ſtyle of agriculture in that county at preſent, compared, occaſionally, with the ſyſtem which prevailed ſeveral years ago, when I ſometimes enjoyed the happineſs of reſiding therein.

It is needleſs to enter into any deſcription of the ſyſtem laid down by the late Mr Fairley of Fairley, as it has been ſo often deſcribed, and is ſo well known. The principal defects of his ſyſtem were, no drainage, no fallows or cleaning crops; and to theſe may be added bad roads; for ſome of the worſt lines of road ever contrived, were planned and executed under his direction.

The old ſyſtem ſtill continues, in ſeveral places, of infield and outfield. The infield gets moſt of the manure, and is always in crop. The outfield is cropped as long as it can repay the ſeed and labour, and often much longer. It is then left to gather graſs as it can. The conſequence is ſterility or weeds for ſeveral years; and, when the land at laſt begins to gather a ſward, it is again maſſacred as before.

On Mr Fairley's plan, the land is indeed laid down with ſown graſſes; but, in all places where graſs would grow with moſt advantage it is ſuffocated, and overmatched, by pernicious weeds. Even in lands moſtly or wholly devoted to paſturage, the weight of weeds often far ſurpaſſes that of the edible graſſes. You can ſeldom handle their hay without being ſtung by a nettle, or pricked by a thiſtle.

The general wetneſs of the climate points out the fitneſs of this diſtrict for paſturage and green crops. In laying down land for paſture, farmers have lately been much injured by the introduction of the annual rye-graſs ſeed, which yields a heavy crop of hay, but leaves the land bare, except where it has been occupied with weeds during ſeveral years. To obviate this, they ſhould raiſe their rye-graſs ſeed within themſelves, and never ſow any but what is taken from the ſecond or third crop. Some tracts in Ayrſhire naturally throw up the moſt luxuriant and nutritive graſſes. Such lands ſhould generally, if not always, be kept in paſture; and, I conceive, when other lands are laid down for a long courſe of paſturage, the ſeeds of theſe graſſes would anſwer better than any others that might be procured.

I remember when turnips were little cultivated in Ayrſhire, but their cultivation is now making a conſiderable progreſs, though they are ſeldom properly cleaned. They are either not thinned at all, or thinned in a very imperfect manner after they are half grown. The advantage of performing this operation, as ſoon as the plants can be diſtinguiſhed, ſeems not to be underſtood. Carrots and parſnips have begun to be tried, and ſucceed well on friable ſandy loams. Cabbages and coleworts attain an uncommon ſize in the garden, but have hardly become an object of cul-

tivation in the field. Vetches, which form ſo important an article of green food in other diſtricts, are ſcarcely known here.

The plant moſt ſkilfully cultivated is the potato, and that chiefly near manufacturing towns and villages. The farmers let plots of ground to the operative manufacturers, at from 8d. to 1s. or more per fall. The farmer gives one ploughing, and the land is frequently afterwards trenched by the ſpade. The manufacturer furniſhes what manure he can afford, and plants the potatoes in rows, generally acroſs the ridge, and cleans them with the hand. Though theſe plots are generally kept very clean, the plants are often too thick in the row, and the rows too cloſe to each other, ſo that the roots are ſmothered by the excluſion of ſun and air; and nearly the ſame effects enſue as if they had been ſuffocated by weeds. The farmers plant and clean their potatoes by the plough, as is done in other places; but they are generally too backward in applying the hand to remove the weeds which grow up in the rows. The large ſweet potato is not ſo much cultivated here as it deſerves, ſince it would prove an excellent reſource for their milch cows and other ſtock during winter.

This county excels in its breed of working horſes and of milch cows. The people alſo excel in the art of making cheeſe, a minute account of which was tranſmitted to the Board of Agriculture, which, with many other uſeful communications, they have choſen to ſuppreſs. I conceive it would be an improvement upon their dairy ſyſtem, to give the animals much more of their food in the houſe, during ſummer, than is done at preſent. This would prevent them from being tortured by flies, and would accumulate much dung for the uſe of the farm. Scrubbing them frequently with the curry-comb might alſo prove beneficial. Straw-yards, to prevent them from poaching the cultivated paſtures in winter, would alſo prove highly uſeful. Theſe ſeem indiſpenſably neceſſary where moſſes are cultivated.

Wheat has now begun to make ſome figure in the agriculture of Ayrſhire. It muſt have been more extenſively cultivated in ancient times, as it makes a conſpicuous figure on the rent-roll of the monaſtery of Kilwinning, and other eccleſiaſtic eſtabliſhments. It is commonly ſown after potatoes, which ſeldom being thoroughly cleaned, the wheat is commonly infeſted with weeds.

A certain party in the Board of Agriculture have declared war againſt naked fallows; and if the accounts given of their practice can be depended on, their farms are like the garden of the ſluggard, almoſt wholly occupied with weeds. They have even contrived to propagate their pernicious weeds, under the name of green crops. To extirpate the weeds with which this county is infeſted, I know of no effectual expedient but a regular

gular courſe of naked fallows, conducted in the ſame way as is done in the Lothians. A proper rotation of crops may afterwards ſuperſede the neceſſity of a frequent repetition of fallow; but naked fallows ſeem indiſpenſably neceſſary in the firſt inſtance.

Some intelligent gentlemen, with whom I converſed on this ſubject, obſerved, that unleſs fallows were to become general, no individual could derive any benefit from them, but would rather expoſe himſelf to more weeds than formerly. For the fallow, by pulverizing his land, would render it a more commodious receptacle for the ſeeds of thiſtles, and other winged ſeeds, which would be blown in upon him from every point of the compaſs.

As you have taken upon you the diſcharge of that public duty, which the Board of Agriculture ſeems to have abandoned, I wiſh you, or ſome of your legal correſpondents, would inform the practical farmers how the law ſtands in theſe caſes. I conceive the law would not allow a man to keep a bear, or a mad dog, to deſtroy his neighbour's cattle: neither ought he to be allowed to keep a magazine of weeds, to infeſt his neighbour's land, and injure his crops. If a man will not take the trouble of eradicating his weeds, he ought, at leaſt, to be compelled to cut them down before they form ſeed. If he knew his own intereſt, he would do this without compulſion; becauſe, with moſs, or ſwampy earth, theſe weeds make excellent compoſts.

No general rotation is obſerved in Ayrſhire, and oats are too often repeated, without variety of crop. In a wet climate, where cultivation depends ſo much on ſeizing favourable opportunities, no invariable ſyſtem of rotation is practicable. But I conceive the perfection of good huſbandry to conſiſt in always interpoſing a green or leguminous crop, or a naked fallow, between every two corn, or white crops. Were this ſyſtem aimed at in Ayrſhire, though it might not always be practicable to carry it into full effect, I am bold to ſay that the moſt beneficial conſequences would enſue.

I would therefore propoſe, on ſtrong tenacious clay ſoils, at firſt breaking from ley—

1. Oats.
2. Naked fallow, with at leaſt five ploughings, including a croſs ploughing, with the vigorous uſe of break and other harrows between each ploughing: the root weeds to be collected in heaps, and removed from the ground.
3. Wheat with manure.
4. Drilled beans, well horſe-hoed between the rows, and hand-weeded in the rows.
5. Barley and graſs ſeeds.
6. Hay, or, which is much better huſbandry, paſture at the outſet, and continued as long as may be found expedient.

After

After the root weeds have been moſtly extirpated from ſuch ſoils, and none but annuals continue to be formidable, it is not neceſſary that a naked fallow ſhould occur in every rotation; though more harm is likely to ariſe from making it leſs frequent than neceſſary, than from making it too frequent. In ſuch a ſuppoſed caſe, the rotation may be varied as follows.

1. Break with oats.
2. Drilled beans with lime.
3. Wheat with dung, or compoſt.
4. Peas, or rather vetches; with the latter of which, if cut early, graſs ſeeds may be advantageouſly ſown.—If not,
5. Barley and graſs ſeeds.—Hay, or rather paſture, as before.

With regard to other ſoils, of which there is a vaſt proportion in Ayrſhire, ſuch as friable loams; thoſe in whoſe compoſition ſand predominates, and thoſe which contain a large proportion of vegetable mould, a different treatment ſhould be adopted. On ſuch ſoils a naked fallow ſeems indiſpenſably neceſſary, in the firſt inſtance, to eradicate couch graſs, and root weeds. All that has been done by potatoes, is merely lopping the branches, while the roots remain, and gain new acceſſions from every branch that is lopped. There is only one tract in Ayrſhire where fallowing would prove fatal. This is the ſandy ſtripe around the bay, from Saltcoats to Ayr, where the ſand is blown into hills, and makes frequent incurſions upon the cultivated land. In this tract, ſuch patches as are cultivated, it would be madneſs to fallow, becauſe this would expoſe the ſoil that had been formed, to be blown away altogether. The only practicable mode of managing this tract, is, 1. To prevent the farther blowing of the ſand, by propagating thoſe graſſes which bind it, and prohibiting the deſtruction of theſe graſſes. 2. Raiſing up the rich clay, and clay-marl, which is not far below the ſurface in moſt places, and top-dreſſing with it thoſe parts which carry any ſort of herbage, or dreſſing theſe places with moſſy compoſts. 3. It would be eaſy to make ſtreams of water to percolate over many fields, which would clothe them with luxuriant graſs, and bind the ſand. This extenſive tract is occupied by rabbits, who, by digging in the ſward, occaſion its conſtant demolition, and its being blown into ſand-hills, or extending its ravages into the ſurrounding country. Were the rabbits extirpated, where there is ſward, vegetable mould and luxuriant graſs would ſoon bind the ſand; or, were the means formerly mentioned adopted, ſheep and cows might feed, where rabbits now can barely exiſt. Even valuable crops might in time come to be raiſed on this ſand, which the rabbits are perpetually expoſing to be ſhifted, and to be blown over the country.

But

But for the other ſoils, I would propoſe,

1. Oats.
2. Fallow.
3. Wheat.
4. Vetches, peas, or turnips, carrots, or any green crop.
5. Barley with graſs ſeeds.—Paſture for one or more years, according to circumſtances.

Or, without a fallow,

1. Oats.
2. Potatoes, or yams, care being taken to remove the root weeds before they are planted.
3. Wheat.
4. Vetches, or a drilled green crop.
5. Barley and graſs ſeeds, &c.

Where the ſoil contains too great a proportion of ſand, neither fallow nor wheat ought to make a part of the rotation, which may be,

1. Oats.
2. Potatoes, turnips, carrots, or any drilled green crop, thoroughly cleaned.
3. Barley and graſs ſeeds, &c.

The extirpation of weeds is a great deſideratum in the agriculture of Ayrſhire, as a large part of that county is now moſt ſhockingly infeſted by them. It is hoped that, by adopting ſome ſuch plans as have been here recommended, the weeds may be ſubdued, and the land become as clean as it is in the beſt cultivated diſtricts.

Flax, or lint, has begun to be cultivated to a conſiderable extent in Ayrſhire; and as they have contrived to ſpin and weave it by the power of water, I do not ſee why the linen ſhould not keep pace with the cotton manufacture. Flax forms an excellent crop for ſown graſs, and may be ſubſtituted in place of barley for that purpoſe.

The cultivation of moſs, in Mr Smith of Swinridgemoor's method, has been carried to a great extent in Ayrſhire; and ſome of the beſt oats, potatoes, barley, and ſown graſs, I any where ſaw, were upon moſs. But the general practice is to crop it until it gets very foul, and then leave it to gather graſs of itſelf. It would be better to clean the land completely, by potatoes, yams, or other drilled crop, and then ſow it down with barley and graſs ſeeds.

Draining is much wanted in various parts of Ayrſhire, though ſome ſpirited gentlemen have lately drained their land in a very effectual manner. This would improve the climate as well as the ſoil; for the evaporation of moiſture generates cold; and the evaporation, when converted into hoar-froſt in the air, ſinks down into

into the hollows, and communicates blight to the crops which grow in them. I conceive that draining ſhould be made a ſubject of public regulation, as well as the extirpation of weeds. I do not ſee that a man has any better right to keep a magazine of evaporable moiſture to hurt his neighbours, than he has to keep a magazine of weeds, or a kennel of mad dogs. In ſome very fertile hollows in Ayrſhire, the crops are frequently blaſted, from this cauſe.

I obſerved the larix tree very much deſtroyed in many parts of the weſt of Scotland, by a ſmall black inſect, which devours the leaves and tender twigs. The miſchief is not ſo much occaſioned by what the animal feeds on, as by the extravaſation of the ſap from its numerous punctures, which, coagulating into turpentine, appears like hoar-froſt on the leaves and branches. I wiſh ſome of your correſpondents who have ſkill in theſe matters, would take this malady into conſideration; for, if the ravages of this inſect are not ſoon counteracted, it threatens to extirpate that beautiful and valuable tree.

Lord Eglintoun is an excellent farmer, and deſerves great praiſe for the energy and ability he diſplayed, in laying out and reducing into cultivation, the waſte lands on his patrimonial eſtate. He always takes an active part in every project which has for its object the improvement and proſperity of the county. He has procured an act of Parliament, and is getting an excellent harbour conſtructed at Ardroſſan, which will be of incalculable advantage to trade, and contribute highly to the improvement of the county of Ayr. The hill of Ardroſſan is not commanded by higher ground. It may be cut perpendicular all round, and converted into an impregnable fortreſs, to defend the harbour, and the ſurrounding country.

His Lordſhip farther propoſes to connect this harbour with Paiſley and Glaſgow, by a canal. Had the Magiſtrates of Glaſgow known what they were doing, they would have made this their harbour *ab initio*, and would have made a canal, inſtead of deepening the Clyde. But the great capitals ſunk at Greenock and Port-Glaſgow, muſt continue to attract a conſiderable ſhare of trade to theſe places; though this harbour, from its ſuperior accommodation, muſt come in for a part. In fact, there is no occaſion for rivalſhip in the caſe; for, by opening new facilities to trade, the general amount of trade will be increaſed, and each port may have as much as it can accommodate, without interfering with the others. The invention of the cotton mill, did not, as was apprehended, diminiſh the numbers employed in that manufacture; but by enlarging the amount manufactured, increaſed them an hundred fold.

Independent

Independent of any foreign trade, it is thought by ſome, that the canal will prove a lucrative concern, from the internal trade of the country through which it is to paſs. The whole tract abounds with manufacturing towns and villages, which muſt occaſion an ample conveyance of perſons, and of goods. It alſo abounds with coal, lime, and iron-ſtone, and other minerals, which the canal will render valuable, while they, in their turn, increaſe the trade upon the canal. Theſe points the gentlemen concerned have not yet brought fully into view, ſo as to impreſs the public with their importance; but it is preſumed they will do ſo, as ſoon as may be convenient.

As this canal will infallibly give riſe to new manufacturing eſtabliſhments, to operate on the minerals of the country, as well as increaſe the number of thoſe already eſtabliſhed, it will, evidently, improve agriculture, by affording a more extenſive market for its produce. It will alſo facilitate the conveyance of manure, and of other articles, from the towns, and of the produce of land in return.

Theſe are a few curſory remarks which occurred during a late excurſion to Ayrſhire. If you think them of any uſe, you may inſert them in your valuable Work. I ſtipulate only one condition, that, when I venture to recommend any thing in practice, you will take the trouble of correcting me where I am wrong. And I have the honour to be, your obedient humble ſervant,

Edinburgh, 20th September 1805. VIATOR.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

IT has often ſtruck me, that the ſuperiority of rural occupations might be very clearly exemplified, by contraſting, in ſome particulars, *the ſtyle of living* purſued by a country gentleman, and by a town rake. The ſerene and tranquil pleaſures of the one are ſeen to moſt advantage, when put in competition with the perpetual buſtle and empty purſuits of the other: The former, it has been juſtly remarked, poſſeſſing health, and all the ſubſtantial comforts of life; whilſt the latter, however gay in appearance, is at bottom the moſt miſerable of beings.

If the inſertion of the following ſketch, detailing ſome particulars which naturally occur in contemplating ſuch a contraſt, is not inconſiſtent with your plan, have the goodneſs to inſert it in your valuable Miſcellany: and with my beſt wiſhes for its ſucceſs, I remain, Sir, your very obedient ſervant,

A LOVER OF AGRICULTURE.

Edinburgh, November 1805.

A Contraſt between the Life of a Country Gentleman, and of a Town Rake.

1. *The Country Gentleman.*

After a ſound and refreſhing ſleep, riſe at 8, and dreſs.—Take a morning lounge along the banks of a beautiful ſtream, ſurrounded by thriving plantations.—Return to breakfaſt at ten, and eat a hearty meal in the cheerful ſociety of particular friends.—After breakfaſt, ſpend an hour in reading, in writing letters, and in converſation.—At twelve, mount on horſeback for a morning ride.—See the whole country one continued ſcene of varied cultivation.—Here, the harveſt carried in; there, preparations for another: In one field, a new crop of wheat juſt appearing; in another, a weighty crop of excellent turnips, with their green leaves, covering the whole ſurface.—The fields encloſed with beautiful hedges, many of them in paſture, and the fineſt breeds of cattle and ſheep feeding in them; the neighbouring farm-houſes looking comfortable, with numerous ſtacks of corn in their yards, the proofs of an abundant harveſt.—Obſerve, with pleaſure, the healthy appearance of the people: Many of the women pretty; and the men ſo ſtrong and vigorous, that at the age of 70, or even 80, they can work at laborious employments.—From the interior of the country, ride towards the ſea.—Paſs, on the road, a thriving manufacture.—Reach the coaſt, and, near a ſmall harbour, improved by the great Smeaton, obſerve ſeveral boats, and a number of hardy ſeamen, preparing their nets for fiſhing.—Return by another road, and trace a new line, ſurveyed by the celebrated Abercromby, by which the communication between the two capitals of England and Scotland will be greatly improved.—Diſmount from horſeback, and take another lounge on foot, to vary the ſcenery and the exerciſe.—Return to dreſs for dinner.—Sit down at five with a hearty appetite.—The fiſh freſh, the mutton old, and the beef excellent, fattened by rich paſture, and not with oil-cake. Indulge in a cheerful glaſs, and, after enjoying the pleaſures of the table, and the converſation of an animated ſociety for ſome time, adjourn to the drawing-room.—Spend the remainder of the evening in chat, in playing at cards, *for amuſement merely*, or in liſtening to delightful muſic.—Take a light ſupper, and about eleven retire, cool, cheerful, and happy, again to enjoy ſound ſleep, interrupted neither by pain, gloomy dreams, nor tormenting reflections.

2. *The Town Rake.*

After a reſtleſs and uneaſy night, riſe between twelve and one.—Order breakfaſt, but have no appetite.—Dunned by a mercileſs

ſet

ſet of clamorous tradeſmen. The uſual anſwers ſent them.—Read the papers.—Find my old friend Jack Daſhwell has died *ſuddenly*. Receive by the pennypoſt a letter from Tom Dicebox, written from the King's Bench, praying for a little temporary ſupply.—(No notice to be taken of the application.)—The Jew, Solomon, announced.—He will only advance another hundred, and demands 20 per cent. intereſt.—' *Muſt have the moniſh.* '—Dreſs at three.—Ride to Hyde Park.—Make two or three calls in Groſvenor-Square.—Nobody ſtirring.—Her Grace will not be *viſible* for two or three hours to come.—Diſmount at Brooks's.—Lounge along Pall-Mall, St James's Street, and Bond Street.—Look in at Carr's and Bootle's.—Return to dreſs at ſix.—Drive to the Houſe.—A debate and diviſion expected.—Pair off for the day.—At eight, dine at the Nabob's; a ſplendid feaſt, but no appetite.—Very dull.—Drive to the opera.—Look in at two or three of the moſt faſhionable boxes, and chat behind the ſcenes with ' *the Graſini.* '—Fly to Lady Teazle's and Mrs Candour's parties.—Stay three minutes at each.—Reach the Marchioneſs of Footwell's ball in Portman Square.—Stop there a quarter of an hour.—Refuſe to dance, or ſtay ſupper, having ſtill half a dozen of other engagements for the night.—Determine to cut them all, and to try my luck at Brooks's.—Find the old ſet there.—After many reverſes of fortune, ultimately loſe five thouſand guineas.—Return home at five, curſing my ſtars.—Throw myſelf into bed, hot, feveriſh, and deſperate.—Endeavour in vain to ſleep, but can only doze occaſionally.—Tormented with a moſt violent headache.—Riſe at one next *morning*, to begin the ſame miſerable round.—Reſolve to put an end to it.—Inquire if my piſtols have been returned from Wogdon's.—Order them to be ready at three.—Send for the newſpapers, to paſs the dreadful interval.—Find in one of them an account of a country gentleman's mode of living.—Read it over and over.—What a contraſt from my own!—Reſolve to reform, to renounce diſſipation and riot, and to devote myſelf, in future, to the uſeful occupations and tranquil pleaſures of rural life.

1ſt November 1805.

FOR THE FARMER'S MAGAZINE.

Second Eſſay, upon the Endurance of Leaſes, preſented to the Eddleſtone Farmer's Club.

In an eſſay which came under conſideration at laſt meeting,* the queſtion, *What length of leaſe will the act* 1449 *protect?* was ably

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* See the Eſſay referred to. Vol. VI. p. 389.

ably diſcuſſed; and the uncertainty of the law on that point noticed by the eſſayiſt. It is my intention, at this time, to offer a few thoughts on the ſame ſubject, and I hope they will meet with ſuitable attention from the members of this Club.

It would ſeem, according to the eſſay alluded to, that a leaſe of any duration ſhort of perpetuity, would be valid againſt the grantor, and his natural heirs or repreſentatives, if the eſtate is not entailed, *for ſo long as they retain poſſeſſion of the property;* but even here, conſidering the chances of their alienating it, either of will or of force, it might be more prudent to accept only of a nineteen years leaſe (which it ſeems clear the law would protect) and continue to confine ourſelves, in our operations, chiefly to the old croft lands; rather than take a long one, whoſe endurance would encourage us to the arduous taſk of encountering ſuch of our wild hills as are acceſſible to the plough, under the riſk of forfeiting our ſtock and labour laid out, by being ejected by *an onerous ſingular ſucceſſor* or purchaſer. Indeed, if in the deciſion to be given in the cauſe of Queenſberry and Elcho, mentioned at laſt meeting, our judges ſhall extend the duration of leaſes (ſo as not to be conſtrued into approaches to perpetuities, and thence to be excluded from the protection of the act 1449) from nineteen years to ſome longer period, as it has been already extended from ten to nineteen,—and there ſeems to be no poſſibility of a reaſon why they may not, if they ſee it expedient;—I ſay, if a deciſion, in this caſe, of a *gratuitous* ſingular ſucceſſor, ſhould be conſidered as a rule of precedent for all caſes with an *onerous* one, on that ſuppoſition, we ſhould have ſecurity of a length of leaſe from a grantor, unfettered by entail, to the extent of the period that ſhall be fixed upon in this deciſion: But, alas, from the diſſimilitude of onerous and gratuitous ſingular ſucceſſors, there ſeems reaſon to ſuſpect (as explained at laſt meeting) that the precedent in the one caſe may not apply to the other.

In regard to *gratuitous ſingular ſucceſſors*, or (as is *their* general deſcription) *heirs of entail*, it would ſeem abſolutely neceſſary for the ſecurity of farmers, that we ſhould get men of buſineſs to inſpect their entails, before we contract with them in a leaſe. For, if all the fooleries which a fooliſh proprietor may abſurdly chooſe to enact in his entail, as to leaſes, are to be held indefeaſible like holy writ (under a *liberal*, inſtead of a *ſtrict interpretation* of the *general clauſe* of the act 1685, empowering his Majeſty's ſubjects to tailzie their lands *with what proviſions they think fit*) we might then be taking tacks of nineteen or twenty-five years from proprietors, who could give no tacks at all, or tacks only for ten years, or tacks merely for life. If, indeed, no

fooleries

fooleries, of this kind, cramping all ſpirit of improvement, ſhould be enacted by the entailer, but the only reſtriction as to leaſes ſhould be left to reſt ſimply upon the clauſe of the entail *de non alienando* (as one of our members at laſt meeting expreſſed it); then we would be ſafe to take a leaſe for whatever period the Court ſhall decide to be (as to gratuitous ſingular ſucceſſors) within protection of act 1449, as not approximating to a right of perpetuity.

In the wavering uncertainty in which the matter is placed, why do not ſome of our patriotic repreſentatives apply for a general law? Why ſhould the law, in ſuch an important matter to the improvement of the country, be ſettled by the ambulatory deciſions of Judges? Why force the Judges, for want of explicit law, upon the indelicacy of becoming, in a manner, legiſlators, and *a law unto themſelves*, in the eſtabliſhment of precedent? And why, thus, attain to intelligible conſtruction of ſuch leaſes as exiſt, only at the expence of private litigation—where, too, from the ſpecialties of every particular caſe, the deciſion may very often not go with certainty to the eſtabliſhment of any general principle?

A moſt reſpectable character, the late Lord Chief Baron of his Majeſty's Exchequer in Scotland, and a proprietor within the bounds of this Club, was at great pains to obtain a general act (act 10th of his preſent Majeſty) by which the abſurdities of entailing-fools might be ſo far counteracted, as not totally to prevent improvement, by the locks they might abſurdly fix upon their properties. As much was gained as could be gained at the time; and, in a variety of particulars, the act is of eſſential utility. But, in regard to leaſes, though it enforces them for 31 years, few are taken under its ſanction upon entailed eſtates; becauſe the obligations it impoſes upon tenants taking the leaſes it allows, are often inapplicable, and may prove deſtructive of the advantages propoſed by the long leaſe: For the tenant muſt encloſe, ſufficiently and laſtingly, during the courſe of the leaſe, the whole of the lands, viz. two thirds in the firſt twenty years, and the other third before expiry of the leaſe; and that, in encloſures not exceeding forty acres a-piece; with an exception, however, in favour of lands not acceſſible to the plough, or improper to be ploughed, where the extent of the encloſures is not reſtricted. Now, though ſuch preſtations on the tenant's part may anſwer in rich diſtricts, on a thirty-one years leaſe, where the expence of encloſure bears ſo little proportion to the value of the land encloſed; yet they would not anſwer in poor diſtricts, where encloſure would often be of little uſe, and where the expence might come near to, or even exceed

the value of the fee-ſimple of the land. It could by no means anſwer to the general deſcription of our county of Peebles, even where there is ſtone upon the land; and how could it anſwer, in thoſe parts of it where there is no ſtone, and where no vegetable fence will grow? Perhaps no proprietor in our county planted ſo many hedges as the reſpectable mover of the act himſelf, though they proved perfectly abortive of every purpoſe as fences.

If a general act of Parliament were applied for, mere lawyers are not the proper judges of what is expedient. Country gentlemen and practical farmers are alone qualified. Why is there not *a chamber of agriculture* as there is of *commerce*, to collect the ſenſe of thoſe beſt verſed in the ſubject?

If a general act were applied for, let it give ſuch latitude to leaſes as would ſuffice to encourage improvement, by farmers, of the moſt waſte parts of the country. And, as the contracting parties can (to uſe Bell's phraſe, in his treatiſe on leaſes) *legiſlate*, in a great manner, for themſelves, by the terms of their agreement, there is ſmall danger of the ſhort-ſighted avarice of landed proprietors not making the leaſes ſhort enough, where there is no neceſſity of their being ſtretched to the utmoſt endurance of the legal term. To ſecure ſucceeding heirs of entail againſt any encroachment upon their reverſionary right by the preſent poſſeſſing heir, it would be ſufficient, to prevent any graſſum or fine at entry being taken, and to enforce the letting of the lands at public roup, without any other *delectus perſonæ* but that of *who bids moſt*;—though perhaps it might be more advantageous to the public that our entailing act 1685 (which ſo fetters all improvement) were repealed altogether, only with the ſaving clauſe (which would be equitable) that the repeal ſhould not affect the right of expectant heirs of entail, who were already in exiſtence, according to Lord Kaimes's views of expediency, ſuggeſted in his *Sketches of the Hiſtory of Man*.

Having offered theſe reflections, ſuggeſted by the Eſſay given in at laſt meeting, *as to the endurance of leaſe which will be ſupported by law*, I proceed to the inveſtigation of the ſecond part of the inquiry, namely, *What length of leaſe it would be eligible to have ſupported by law?* the intereſt of both proprietor and tackſman being duly conſidered.

But before proceeding to this diſcuſſion, it may be a matter of curioſity to inquire what reaſon, or ſhew of reaſon, influenced our law authorities (founding themſelves, no doubt, on what was, or was ſuppoſed to be, the prevailing notion), to extend the legal endurance of the leaſe, from the former *ten* years,

or

or even a ſhorter period, and to fix upon, and finally to reſt in, the number of *nineteen* years; a number ſeemingly conſidered as of Pythagorean ſanctity, and to which a reverential deference has ſeemed neceſſary to be paid, when, in the view of improvements of great outlay, and diſtant return, this period muſt obviouſly have appeared by much too ſhort for ſuch enterprizes; ſo that the longer period never was mentioned directly and avowedly, but was introduced by repetition of periods of nineteen, that it might find ſhelter and protection under the taliſmanic influence of this ſacred number.

It appears very probable that this number was fixed upon, to correſpond to the preceſſion of the nodes of the moon, which, in nearly the period of nineteen years, have completed their courſe, ſo as to recommence at the ſame point of the ecliptic from which they had ſet out at the beginning of that period. And, as it might probably be a popular belief, that a revolution of the nodes completed a given ſet of ſeaſons, which would recommence and proceed in the ſame track with a freſh recommencement and preceſſion of the lunar nodes, it might ſeem that this nineteen years period of a leaſe gave to every ſucceeding tenant his equal ſhare of the ſet of ſeaſons, as influenced by a complete preceſſion of the nodes.

Aſtrologers have formerly aſcribed much influence upon human affairs, to the aſpects of the planets, malignant or benign; though, in proportion to the rejection of inference, drawn from mere arbitrary hypotheſis, and the adoption of a ſounder mode of philoſophizing, in which nothing is admitted as proved, but what has ſtood the teſt of inſtituted experiment, or of conſtant obſervation, the planets have been ſhorn of theſe their former honours, and the art of divination by the *horoſcope* has been thrown aſide. But, though the influence of the more diſtant planets may juſtly have fallen into diſrepute, ſtriking circumſtances preſenting themſelves to obſervation, may ſtill continue to preſerve to the moon, a reputable degree of credit for her influence; for ſhe is ſtill the acknowledged miſtreſs of the tides; and, in the caſe of declared lunatics, the powerful influence of her *phaſes* has been remarked upon human brains. Were, however, the influence of the periodical preceſſion of her nodes real, in introducing, in each nineteen years period, a ſimilar tract of ſeaſons, the diviſion of each year of our Lord, in which any thing ſtrikingly remarkable in the ſeaſon has occurred, by nineteen, would always preſent an integral quotient, or one with an equivalent fraction; if, however, we divide, in this manner, the years of the great dearth in the end of the century before laſt, 1698-9, thoſe of the dearth in the

end of laſt, and commencement of this century, 1799, 1800-1, or thoſe of the froſty ſeaſons 1740, 1782, the quotients will be found ſo very unanalogous, as to deſtroy all credit of the influence of the nodal preceſſion; unleſs, indeed, for the ſupport of the theory, we ſhall admit of the ſame latitude of interpretation as thoſe do who pretend to judge of the weather by the moon, and who conſider every day of her quartering, together with ſo many days before, and ſo many days after, as all critically prognoſtical. It is, however, to be hoped and expected, that lunar influence will not operate in the deciſion to be given upon the endurance of leaſe protected (at leaſt againſt gratuitous ſucceſſors by entail) by act 1449, in the depending cauſe already noticed.

Having ſtated theſe preliminary obſervations, which I hope, my wiſh to entertain the Club will lead them indulgently to conſider as not foreign to the purpoſe, I proceed to the queſtion, *What endurance of leaſe is moſt eligible for both landlord and tenant?*

Now, were it conceivable, or had it in fact happened, that landed proprietors, farming their own lands, with their own ſtock, at their own riſk, and by ſlaves or menial ſervants placed under the delegated authority of an overſeer, could have made as much profit, as by letting their lands upon leaſe to farmers, occupying with their own ſtock, and acting at their own riſk; or, were the lands divided by an Agrarian law, into ſuch minute and equal poſſeſſion among proprietors, that each diviſion required the utmoſt exertions of each proprietor in cultivation, to enable his land to yield himſelf ſubſiſtence; and were it unlawful (as would be neceſſary to uphold ſuch a conſtitution of property) for the proprietors to denude themſelves of theſe their minute properties, by ſelling them to ſuch as would buy them up, in order to obtain money to enable them to betake themſelves to ſome other profeſſion or trade:—In either caſe, farmers (properly ſo called) and leaſes could never have been heard of. But, under the conſtitution of property, with which we are acquainted,—where large tracts of land, exceeding, in extent, the capacity of perſonal ſuperintendance of its proper farming, even of the moſt expert profeſſionaliſt, are found in the hands of ſingle proprietors,—and where the poſſeſſion of ſuch extenſive property neceſſarily leads the proprietor to attend to the elegancies, and not to the mere utilities of life;—farmers are indiſpenſable: They can outbid ſuch proprietors for the poſſeſſion of their properties, being able to afford more as rent, than ſuch occupiers could make of the groſs produce, in occupying by themſelves

or

or ſervants;—it is, indeed, to this capacity of outbidding that they owe their exiſtence as a diſtinct claſs. Such farmers, however, acting upon their own capital, and at their own riſk, muſt be induced into, and retained in their occupation (juſt as other profeſſionaliſts are led to betake themſelves to, and to abide by their ſeveral profeſſions) by the proſpect of intereſt; and this proſpect of intereſt can in no way be ſecured, but by leaſes, inſuring them of ſufficient length of poſſeſſion to reap the proper fruits of their induſtry and outlay, ſpecifying a rent certain, of which the farmer was aware at his bargain, and defending him againſt unſpecified arbitrary exactions. The relative ſituation of proprietor and farmer is that of a *copartnery concern*, in which the former is the dormant, the latter the active partner, and in which the advantages muſt be mutual, elſe the copartnery muſt diſſolve. If the advantages the farmer enjoys are not equal to thoſe to be derived from other profeſſions requiring induſtry and ſtock, his will both gradually be withdrawn from agriculture to theſe other profeſſions; till, through competition of this ſort, they are both reduced to the ſame level of profitableneſs. If farmers were, through more and more diſcouragement, gradually reduced to beggary, they would beggar, in their progreſs, all the other members of the community; and the lands would become a deſart. A rent that does not eat up all the produce which he is able to raiſe by his induſtrious application of his preſent capital, but allows a profit to be added to his capital to enable him ſtill farther to extend his exertions, together with a duration of poſſeſſion, allowing time for a return for ſuch capital and exertions, are indiſpenſable to the farming intereſt, to excite them to the general improvement of the country.

Hitherto I have dwelt merely in generals; and, in truth, in regard to this ſubject, we can perhaps only lay down general maxims, which muſt be modified in their application to each particular caſe. I ſhall, however, attempt a more particular ſpecification.

I would, in the firſt place, then, obſerve, that there is one claſs of occupiers of land for rent (but who cannot properly be called farmers, becauſe they neither cultivate land nor farm-ſtock) who need no leaſe at all, nor longer occupation of land than from year to year;—theſe are the intermediate men betwixt the cultivating raiſers of produce and its conſumers; drovers of cattle and butchers, who need only halting places for cattle, to await the returns of markets. Perſons of this deſcription need no more than an annual occupation of paſture land to accommodate their trade; theſe, too, can always be certain of obtaining the lands contiguous to great towns which ſuit them, being able

to afford more than what can be given for the purpoſes of the farmer; though ſuch of them as have ſecurity of permanence of trade, might wiſh for ſimilar permanence of poſſeſſion of the lands that ſuit them, which too they may generally command, from the greater ſecurity they hold out for the rent. Yet, where the lands are of that deſcription, as would deteriorate without alternation of tillage and paſture, it is evident, from the well-known principles of the diviſion of labour, that to be tied to ſuch occupation, as would breed ſuch diſtraction of application and employment, could not fail to be to them highly incommodious. The quantity of land, occupied by thoſe of this deſcription, muſt neceſſarily be very limited.

A greater quantity of graſs land, than theſe ſaid halting places, is required by profeſſional graziers—a ſort of middlemen too, like the former, though of longer interval; ſomewhat approaching to the deſcription of cultivating farmers, becauſe they improve the cattle they purchaſe before bringing them again to market; yet differing, in that they neither cultivate *land* nor *breeds* of ſtock-cattle. Annual occupation of land would ſeem alſo to ſuffice for this deſcription, as, upon the principles of ſubdiviſion of labour, theſe too would be incommoded, in being tied to the occupation of lands needing alternation of culture. They may be conſidered as ſtanding in the ſame relation to the cultivators of the ſoil, as the wholeſale merchant to the manufacturer; they are ready to take, wholeſale, off his hands, ſuch fields as he has manufactured into proper graſs, and to retail out its produce, in the ſhape of fattened cattle, either immediately to the conſumer, or to the intervening middlemen before deſcribed. Permanent reſidence would be rather inconſiſtent with their profeſſion; their ſpeculation, as to the return from the land, extends no farther than to render lean cattle fat upon it within the ſeaſon, and their ſuperintendance needs only to be occaſional, not conſtant;—indeed, where graſs lands are ſufficiently encloſed, the beſt ſuperintendance is to leave the cattle entirely to their own diſcretion. Men of this claſs are of great accommodation to cultivators, too, in taking, in wholeſale, their prepared turnip fields; and they can, without inconvenience, occupy lands at all diſtances, and in the moſt diſperſed ſituations.

There is another deſcription of mere paſture farmers, who could not, like the middlemen before deſcribed, diſpenſe with permanence of poſſeſſion. Theſe are the occupiers of hill paſture breeding-farms, of coarſe natural graſſes, and which could not be cultivated but at an expence diſproportionate to the return. At firſt ſight, ſuch farms might ſeem to fall under the ſame rule as graſs lands, occupied by fattening graziers. If, however, the

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riſk of changing breeding ſtocks of ſheep (ſo feelingly experienced occaſionally in Tweedale) is attended to, as alſo the time requiſite, in regard to all cattle, for bringing to perfection the amelioration of breeds, together with the riſk of expoſing the whole ſtock to ſale at diſadvantageous markets, upon ſuch frequent removals; and the hazard of bad debtors, upon ſuch forced ſales, which muſt be completed by a given time, to make room for the intrant tenant, and which preclude all opportunity of awaiting the caſting up of good cuſtomers;—it will, from theſe reaſons, abundantly appear, that a leaſe, of the endurance of the ſacred number of nineteen years, may be fully ſhort enough, but cannot be accounted too long.

Arable farmers would need different endurance of leaſe, according to the deſcription of their farms. In farms acceſſible to the plough, but entirely in a ſtate of nature, without having undergone drainage, encloſure, or any manner of ſurface culture, and worth very little in their preſent condition, a farmer, upon the ſecurity of a three nineteen years leaſe, might give a rent out of all proportion greater than could ever be offered in a ſucceſſion of three leaſes, or any number of leaſes, of only nineteen years each, where, of courſe, no improvements would be undertaken, of longer proſpect of return, than merely that of nineteen years; more eſpecially, if the rent were low at the entry, and were to riſe gradually towards the expiry of the leaſe: for it were abſurd to ſuppoſe that farming capital exiſts ſufficient to improve at once the whole waſte lands of the country; it muſt accumulate gradually in the hands of the cultivators, in the exceſs of their profits above their rents; *when*, in ſuch economical hands, ſuch exceſs is added to the capital, and launched anew into more and more extenſive improvements, in the ratio of geometrical progreſſion. To a proprietor who is, in fact, *abſolute* proprietor of his lands, it might be highly advantageous to let them upon ſuch a leaſe, for his property would become to him, every year, more valuable; as every year it would draw him more purchaſe money upon a ſale. A leaſe of this kind is not, however, to be expected from an heir of entail, fettered by clauſes againſt alienating or diſponing, even though unreſtricted as to duration of leaſes. For what proprietor of this deſcription would ever forego the more immediate petty advantages accruing, at new lets of the land, from the ſhortſighted improvements previouſly made upon the nineteen years proſpect of poſſeſſion, for the advantage of the ſo much ſuperior improvements to be expected upon the longer leaſe,—to be reaped by a ſon or grandſon, if he has male heirs, who will hold his paternal authority at defiance as being independent upon him,—

but to the excluſion of daughters, if he has only daughters, who muſt be beggars, if he does not live beggarly himſelf, in penuriouſly ſaving to create an independency for them? The only chance of obtaining ſuch a leaſe upon an entailed eſtate, is, when the poſſeſſing heir is ſucceeded by one of a different family; and when (as in the caſe of the barony of Neidpath) the entail ſeems to lay no reſtriction upon the power of letting leaſes, excepting *that they ſhall be let without diminution of rental;* and where, of courſe, (as is at preſent attempted) the poſſeſſing heir will endeavour to make the moſt he can for himſelf, by uſing his power in all its latitude, in letting leaſes to their utmoſt extent of legality, at the old rents, receiving proportionate graſſums, or fines, at entry. A meaſure, to be ſure, ſo far hurtful to improvement, by reducing the tenant's power, in diminiſhing his capital by the advance of the fine,—but, in public utility, preferable far to the circumſcription of the power of granting leaſes;—though it were ſurely better to repeal the act 1685, in the manner before ſtated, than to defeat the juſt expectations of reverſionary heirs, through views of public utility, by introducing a latitude of interpretation into every particular caſe that occurs. But why ſpeak of the eligibility of long leaſes, whilſt it remains uncertain what ſupport the law will give them,—either in the caſe of *gratuitous ſingular ſucceſſors*; which remains to be determined in the pending caſe—or in that of *onerous ſingular ſucceſſors*; for the which, the deciſion to be given in this caſe may, or may not, form a precedent?

There is a ſpecies of arable farms, where it might probably be ſuppoſed that very ſhort leaſes were ſufficient. It is the caſe where the whole farm is already improved to the utmoſt (if indeed any farm can be determined to be *improved to the utmoſt*, upon any ſcheme of improvement yet known), and where the laſt tenant removes under reſtrictions of undeviating management, the new tenant entering under the ſame reſtrictions. It may be ſuppoſed that here a leaſe of the old Roman legal term of five years, or the late nine years of the French, would ſuffice. Two obſervations I have to make, will be ſeen to militate againſt the utility of ſuch circumſcription. *Firſt*, Under ſuch ſhort tenures of poſſeſſion, it appears to me that the farm muſt inevitably deteriorate, in ſpite of all reſtrictions: the preparatory dreſſings, which are the eſſential ones, as to the improvement of the farm or its preſervation from retrogradation (viz. bare or green crop fallow), will always be the more ſlovenly performed, in proportion to the ſhortneſs of intereſt in the ſucceeding rotation, as they are the moſt expenſive of the whole: the intrant tenant, if he has

has but one courſe of rotation, may think, that, as the farm has been ſo well improved already, a very ſuperficial preparatory dreſſing may ſerve for his ſingle ſubſequent rotation; and the next intrant may find the land ſo greatly fallen back, that he cannot afford ſo much rent as his predeceſſor paid, without a longer extenſion of leaſe, which is the ultimate remedy. Even if the poſſeſſing tenant poſſeſſes only during two full courſes of rotation, though the firſt preparatory dreſſing will be performed beyond the letter of the law of reſtriction, the ſecond will ſatisfy itſelf with barely keeping a ſingle point to the windward of the ſtrict letter; and that, were it for no other cauſe than the mere grudge at being outed by a ſucceſſor. A farm ſo frequently expoſed to ſuch influencing cauſes of deterioration, will never be kept in ſuch trim, as one, where the tenant having intereſt in the conſequences of a ſucceſſion of preparatory dreſſings, will neglect none of them but the laſt. But, *ſecondly*, it is for the intereſt of proprietors to impoſe no diſcouragement upon tenants, which may force them to transfer their capitals to other profeſſions, where the like do not occur. A tenant cannot ſubmit to the irkſomeneſs of frequent removal; the reaſons againſt it, ſuggeſted in regard to breeding farms, here again, in part, recur; and, moreover, the ſtock, dead and animate, which he does not need, and does not chooſe to part with, cannot be carried about upon his back, as Chineſe tradeſmen are ſaid to carry the implements of their profeſſion to the doors of their employers. Even an Edinburgh grocer is not fond of frequent removal, although his houſehold furniture and merchandize can eaſily be moved of a morning, in creels upon porters backs, to another tenement acroſs the ſtreet: He wiſhes for a leaſe of ſome permanence of his premiſes; and, accordingly, he obtains a leaſe—unfettered by the *jus delectus*, to confine him to immediate perſonal occupation, or prevent him from aſſigning his leaſe to another, when either an extenſion or circumſcription of his trade induces him to betake himſelf to a leſs or larger occupation of tenement. The exact duration of a leaſe, ſufficient to obviate theſe inconveniences of a ſhort one, it is perhaps difficult to ſpecify with preciſion—perhaps it may be from the mere predilection of habit; yet, even in a farm of this deſcription, I ſhould conceive a leaſe of nineteen years to be the leaſt, in point of duration, to give ſatisfaction.

I ſhall not enter into figured caſes of farms, of a deſcription intermediate to thoſe already ſpecified. I ſhall only, in general, remark, that, as they verge to the ſeveral natures of thoſe above deſcribed, leaſes, in all proportions greater than nineteen, or leſs than fifty-ſeven, might be requiſite or ſufficient.

I have not entered into numerical calculations: Where the data can be no more than aſſumed probable hypotheſes, the exactitude of figures is, at beſt, but affectation, and may convey ſuſpicion of intentional impoſture.

Upon the whole, a leaſe of nineteen years ſeems the ſhorteſt eligible upon any farm, as perhaps one of fifty-ſeven may ſuffice for any probable farming enterprize. But, ſtill, what ſays the law as to the ſecurity of one above nineteen? Lord Kaimes's perpetual leaſe might be the moſt eligible, in every point of view: But what ſayeth our law?

I ſhall conclude with ſuggeſting a queſtion,—peculiarly intereſting in this county at preſent, but which may alſo be generally intereſting.

Suppoſing a tenant hath obtained a leaſe, of a duration *ultra vires* of the proprietor to grant, and that this leaſe has been clothed with poſſeſſion (an indiſpenſable requiſite to a Scots tenant's ſecurity); ſuppoſing, then, that it hath been legally proved to have been granted *ultra vires* of the grantor; what will be the effect? Will the leaſe fall entirely to the ground as null and void? or, ſhall it be preſumed that the grantor intended to grant a leaſe as long as he had power to grant, and ſhall the leaſe be held good for this length of time? Or, allowing this ſecond alternative to be ſuſtained, from whence ſhall the currency commence? ſhall it be from the date of the granting of the leaſe, or from the moment before the grantor ceaſed to be proprietor, by alienation or by death? R.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Reply, Sir G. S. Mackenzie to Mr Headrick and A. S.

SIR,

I SHALL as briefly as poſſible endeavour to ſatisfy Mr Headrick, and relieve your readers of this tedious diſcuſſion on the analyſis of limeſtone. In anſwer to his firſt remark, I beg of him to recollect, that I had no means of diſcovering that he had not *regularly* analyzed Mr Low's limeſtone. Had he gone through an elaborate proceſs, with the view of diſcovering the nature and proportions of every ingredient, he knows well, that he would probably have loſt ſomewhat more than the half of a grain. At leaſt I preſume this, from what he ſays at page 114, of the loſs generally experienced in ſuch operations.

Since Mr Headrick cannot diſcover wherein he has miſrepreſented me, or acknowledged the validity of my objections to the proceſs, as deſcribed by A. S., I muſt requeſt of you to indulge me

me with a little ſpace, in order that I may point this out to him. That he miſrepreſented me willingly, I never could ſuppoſe.

1. The whole of the firſt paragraph in Mr Headrick's letter in No. 21., muſt lead any one, who had not read my former letters, to ſuppoſe, that I had *denied* the importance of analyzing limeſtones, in order to aſcertain their reſpective values; whereas, I meant not only to ſhow the importance of this, but the importance of having it well done.

2. In the ſecond paragraph, Mr Headrick fairly acknowledges the poſſibility of the muriatic acid of the ſhops being impure (which was my chief objection to the proceſs of A. S.), by pointing out a method of making it pure. Againſt the method alluded to I muſt enter my proteſt, as, notwithſtanding every caution, ſome barytes will remain. There is a better and an eaſier way, which is to put the acid into a retort containing ſome ſea-ſalt, and diſtilling it. Mr Headrick alſo details the neceſſity of uſing ammonia. Of this, and other parts of the proceſs, there is no mention made by A. S., who very ſapiently tells farmers to do what he bids them, without telling them *how* to do it.

3. To the firſt part of No. 3. I have nothing to object. With reſpect to what is ſaid of bituminous or coaly matter being preſent in limeſtone, Mr Headrick has forgot a very material point. He tells us what to do when limeſtone is *known* to contain ſuch ingredients; but he does not tell us how to find out that they are or are not in limeſtone. Perhaps Mr Headrick meant to write, 'When theſe ingredients *are ſuſpected* to exiſt,' &c. As limeſtone often contains a conſiderable quantity of ſuch ſubſtances, I mentioned the propriety of burning the ſtone before analyzing it. There is yet a better method, which I have little doubt of Mr Headrick's approving, which is to heat the ſediment red hot for ſome time, in a ſmall crucible, before weighing it.

We are told that diſtilled water is beſt for the proceſſes deſcribed; but that any water free from ſediment, and *ſalts* which may be decompoſed, will do. But we are left in the dark reſpecting the method of diſcovering ſuch ſalts. The taſte will not do. So it is beſt to keep to diſtilled water. I really am not at all inclined to agree to what is ſaid in the laſt part of this ſection; and I beg leave, while acceſs can be had to him, to recommend application to Mr Headrick, as a profeſſed mineral ſurveyor, in all caſes where farmers wiſh for information; or to any other ſkilful chemiſt, who will take the trouble to examine their limeſtone, inſtead of trying to do it themſelves, if they have no knowledge of practical chemiſtry.

Mr Headrick tells us, that, in my ſecond letter, I ſeemed to abandon

abandon the process I formerly recommended. His taking no notice of *why* I seemed to do so, I think a species of misrepresentation. He might have remarked, that, in the analysis I gave you, I had found it faulty. Am I to blame for that? I should most heartily despise any man who would not acknowledge an error when he found it; and much more would I despise him, did he mulishly persist in defending an error when proved to his own satisfaction.

And, now, I appeal to yourself, and every one who reads the Magazine, whether the whole of Mr Headrick's paper be not a vindication of A. S., at least of his process; and whether Mr Headrick, meaning 'to explain what A. S. only *hinted* at,' be not an apologist for A. S. writing in such a hasty manner, and not explaining himself fully.

So much for the first paragraph of my letter. As to the second, Mr Headrick begins by misrepresenting my words: 'In his second paragraph, Sir George finds fault with my process, as discovering only the quantity of carbonate, and not the quantity of pure lime the farmer carries home.' Now, I state expressly, that it is not by any means the proportion of carbonate *contained in the mass*, which a farmer wishes to ascertain, but the proportion of lime to the refuse; and that a farmer does not *wish* to carry home carbonate. I never could object to Mr Headrick's process, what neither that nor any other can discover. A farmer may carry home more or less carbonate at all times, and know nothing of it, unless he were to dissolve a great quantity, and observe the degree of effervescence. The bad slacking of lime may as readily be attributed to bad limestone as bad burning, and from that the quantity of unburnt stone cannot be found out. Mr Headrick's process does not show the quantity of carbonate a farmer may carry from a lime-kiln, although he seems to think so from his reply to my supposed objection. But I may misunderstand him. Mr Headrick now calls to my notice, what I assure him did not escape me. I perfectly agree with him, that, could we find a medium from a number of observations, we might then have every necessary means of comparing limestones. But this we are not yet possessed of. Kirwan, Bergman, and Thomson, did not examine common limestone; it was pure crystallized carbonate. When chemists of such celebrity differ, we must wait for further experiments. These Mr Headrick, as a mineral surveyor, has a good opportunity of making. In the mean time, I shall trust Mr Kirwan, and Mr Headrick may have faith in whom he pleases. But I will venture to prophecy, that Kirwan's proportions will come nearest to the medium which Mr Headrick wishes for.

I observe a curious contradiction in one of Mr Headrick's paragraphs.

ragraphs. He ſays, that if the acid be well managed, there is no occaſion for the other agents which were named; and ſoon after ſays, that they are *neceſſary to prevent errors*. He alſo forgets ammonia, which is neceſſary to ſeparate from the ſolution of lime any part of the refuſe diſſolved. It happens often that none of it is taken up; but no one will truſt to conjecture.

Mr Headrick now points out ſome errors of the preſs; and I ſuppoſe he did not do it before, for the ſame reaſon I have not noticed ſome errors in my papers, viz. that they were too evident to be miſunderſtood. However, Mr Headrick takes the error in my laſt as a joke; and A. S., very learnedly, in another way. Grains, and not pounds, was what I wrote. Pounds are too much for a joke. I have reſerved my explanation of what Mr Headrick and A. S. do not underſtand till now. I hope I ſhall make them underſtand my words better, and I have ſome notion that they will not think my expreſſion ſo very obſcure as they repreſent.

At page 13th of Mr Headrick's paper, he ſays, 'The number of parts by which the filter now exceeds its counterpoiſe, is the weight of the refuſe; which being deducted from 100, the original weight of the limeſtone, the remainder *is the proportion of the carbonate of lime* contained in the maſs.'

At page 17th, he ſays, that limeſtones 'are often alloyed with carbonate of iron and other metals, or with carbonate of clay and other earths,' and that ſuch a quantity of acid muſt be uſed 'as will be ſufficient to expel all the carbonic acid from the maſs.' Now, as the carbonic acid is expelled from theſe carbonates, its weight muſt neceſſarily be included in the remainder of the calculation in p. 13. For the ſake of example, let us ſuppoſe that a limeſtone contained—

Carbonate of lime - - - - - - - -	60
——— of iron - - - - - - - -	5
——— of clay - - - - - - - -	5
——— of other metals and earths	10
Refuſe - - - - - - - - - -	20
	100

We are directed, p. 13, to deduct for refuſe, ſay 30, which leaves 70 for carbonate of lime. But it is plain that we muſt deduct 10 more for the carbonic acid in the iron, &c. (p. 17.) So that by the directions at p. 13, we are left with 10 parts too much of carbonate of lime. In ſeeking for an error in the proceſs I recommended, Mr Headrick has found one in his own. I did not ſtate this as an error, but I preſumed it was an overſight. If the carbonic acid in other carbonates beſides that of lime cauſes an error in the one calculation, it will do ſo in the other.

other. In the caſe I have ſtated, I have taken one half the weight of the carbonate for the weight of carbonic acid. Again, ſuppoſe we ſtate the contents of a ſtone to be—

Acid - - - -	32
Lime - - - -	53
Water - - - -	9
Refuſe - - - -	6
	100

By Mr Headrick's proceſs, 6 is deducted from 100, which leaves 94, and this is preſumed to be carbonate of lime. But what becomes of the water? It is not left among the refuſe. Therefore, we have in this caſe 9 parts too much. I am ſurpriſed that Mr Headrick could not diſcover my meaning, on reading the two paſſages of his paper to which I referred. I hope I have explained myſelf in ſuch a way, that any obſcurity in my former words may be removed.

And now, Sir, permit me to recall to your recollection, that what I at firſt objected to was the indiſcriminate uſe of acid taken from any laboratory. This I ſtill proteſt againſt, and ſo will any perſon who knows any thing of the matter. I then ſtated, that other component parts of a ſtone might be diſſolved along with the lime. This has not been denied; and the uſe of ammonia has been introduced, as well as a method of purifying the acid. Inflammable matter may alſo be left in the ſediment; but, in the courſe of the diſcuſſion, we have found a way of getting rid of it. It is evident, therefore, that the objections which I ſtated againſt the proceſs, as mentioned by A. S., have all been acknowledged, and methods propoſed to get rid of them. I propoſed another method of examining limeſtones; but not with the *modeſty* of A. S. I firſt confeſſed my ignorance of any other method, by which we might have a *tolerable* way of judging of the quality of limeſtone, without a *regular* analyſis. I afterwards detailed a regular analyſis, to ſhow that it required much patience and attention, and manual ſkill. I did not propoſe *the tolerable* proceſs as infallible; on the contrary, I took pains to point out its fallacy. Mr Headrick comes forward, and ſays that I choſe to controvert the proceſs of A. S. But will any candid perſon ſay, that the proceſs, as detailed by Mr Headrick, is the ſame as that mentioned by A. S., or, as it has turned out, *hinted* at by him? A *hint* and a detail are two different things. We may underſtand the one, and not the other. Mr Headrick then proceeds as if I had recommended the complicated analyſis, in my ſecond letter, as proper to be adopted by farmers, which I am ſure I never had a thought of doing. I wiſhed them, and wiſh them ſtill, to apply to a chemiſt in every caſe. Mr Headrick, in making his remarks

on

on my propoſal, only, in fact, *repeats an objection to it, which I ſtated myſelf.* At the very outſet of my letter, I mention the difference between the real proportion of lime and carbonic acid, and that reſulting from the proceſs I recommended; and that this was owing to the variable proportions in different limeſtones. The truth is, that the errors to which both proceſſes are liable, nearly balance each other, and they proceed from the ſame cauſes. Mr Headrick's proceſs is perhaps the eaſieſt to perform, as it requires leſs caution, and there is leſs riſk of loſing any thing. By uſing *pure* acid, and *pure* ammonia, and *diſtilled* water, the truth may be approached as nearly as may be neceſſary, and my objections are removed. But if the directions of A. S. are followed, and acid be brought without diſcretion, I proteſt againſt the proceſs, eſpecially if ammonia be not employed. In ſaying ſo much, it muſt be remembered, that I conſider every objection I have ſtarted againſt this proceſs as remaining in full force, in reſpect to ſtrict chemical accuracy. But if that be not required, the proceſs is ſufficient. Before concluding this part of my letter, I muſt tell Mr Headrick, that Mr Telford, the engineer of the Caledonian Canal, informed me lately, that he had found ſeveral limeſtones, ſuch as Mr Headrick deſcribes, very uſeful in the waterworks, the lime from them ſetting wonderfully well. This Mr Headrick will not be diſpleaſed to learn.

And now, Sir, having done with Mr Headrick, who certainly has carried on this diſcuſſion in a gentlemanly ſtyle, allow me to ſay a few words to my other antagoniſt A. S., whoſe conduct, perhaps, deſerves to be characterized in a different manner. I ſhall at this time introduce myſelf to him with a few lines from Hudibras, which likely may be viewed by many of your readers, as not inapplicable to his laſt communication.

> 'Tis ſtrange how ſome mens' tempers ſuit
> (Like bawd and brandy) with diſpute:
> That for their own opinions ſtand faſt,
> Only to have them clawed and canvaſſed;
> That keep their conſciences in caſes,
> As fiddlers do their crowds and baſſes,
> Ne'er to be uſed, but when they're bent
> To play a fit for argument.'

A. S., encouraged no doubt by Mr Headrick's diſputing with me, has ventured to pop up his head for another ſcratch. Really, Sir, much amuſement and diverſion may accrue to your readers, from peruſing all this clapper-clawing; but for edification, I fear they will look to A. S. in vain; and I much fear, that they will accuſe your printer for leaving out an S in his ſignature. Some people have a natural vein of humour in their diſputations, and, while they banter their opponents, preſerve ſo much manli-

neſs

neſs and temper, that it is impoſſible to be angry with them. Such was Pol-Œconomicus, to whom A. S., with the moſt unparalleled aſſurance, preſumes to compare himſelf. Perhaps A. S. thinks me ſo good-natured, that I will neither be angry with him, nor ſo polite as to give him relief from that peculiar ſort of itching with which he is troubled. He will find himſelf miſtaken. I will apply the beſt remedy in my power. A. S. knows beſt himſelf, why he has been hitherto ſo forbearing, as not to honour me with an anſwer. His delay reminds me of a ſcene I witneſſed but a few days ago.—A pointer, a ſpaniel, and a pug entered a drawing-room. Pug ſnarled at the pointer, but dared not bite. At length, the pointer and ſpaniel found means to quarrel, when pug ſeized his opportunity, and took his ſnap at the pointer. I was ſurpriſed, that Mr Pug's bite did not incommode the pointer; but, on examination, I found that he had *no teeth*.

Mr Low and Mr Headrick, are men whoſe bad opinion I certainly would not covet; but were they to expreſs their opinion in the way done by A. S., I would not turn the hundredth part of the hundredth part of an inch out of my road either for their good or their bad opinion. They and I will ſettle our affairs, without the interference of A. S.; and, in my *caſtle of hoſpitality*, they ſhall meet with a hearty welcome and good cheer. I would not refuſe admittance even to A. S., though, I muſt confeſs that a different kind of treatment would await him.

As to my giving my name in the Magazine, you know, Sir, that it does not proceed from vanity; and as for ſpirit, in the ſenſe it is taken by A. S., I have none of it. I have the ſpirit to do what is *proper*, and the ſpirit to deſpiſe the riſk of being attacked by unknown ſcribblers. Whether A. S. may be conſidered as a learned or unlearned farmer, is a matter of ſmall importance; but I beg leave to tell him, that I think of him exactly as he deſerves. I have too good an opinion of the great body of farmers, to fear that they will view what I ſaid as in the leaſt diſreſpectful to a profeſſion, whoſe merits and uſefulneſs I highly eſtimate. A. S. is kind enough to give me a liſt of preceptors: But, as charity begins at home, he has reſerved the chairs of modeſty and common ſenſe for himſelf; which to be ſure he is admirably well qualified to fill.

I have now to crave your excuſe, for taking up ſo much of the Magazine with a buſineſs in ſome degree perſonal; but as you permitted ſuch a daring and atrocious attack to be made againſt me, an honeſt impartiality will no doubt ſuggeſt that I am well entitled to be heard in my own defence. I am, Sir,

Your humble ſervant,

Sept. 1805. G. S. Mackenzie.

TO

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

As I obſerve among the Notices to your Correſpondents, that you mean to cloſe the diſcuſſion relative to the analyſis of limeſtone, with a letter from Sir George S. Mackenzie, Bart. I beg leave to requeſt your giving this a niche in your Magazine, as it will eſtabliſh a ſatisfactory concluſion to the whole. By a letter I had the honour to receive from Sir George, it appears that the reſult, of an analyſis of ſome of the ſame limeſtone which he had taken the trouble of, is only one *per cent.* different from that of Mr Headrick. So that all theſe chemical gentlemen, who have ſo ably illuſtrated a ſubject of ſuch eſſential importance to farmers and builders, have eſtabliſhed the correctneſs of their reſpective proceſſes ſo fully, that there is the moſt perfect coincidence in each of their accounts.

You know that A. S. began, by ſtating that there was ſome limeſtone in this neighbourhood, ſo very pure, as only to have a half *per cent.* of alloy. In the table given by Mr Headrick in your Magazine of November 1804, it appears that two ſtrata of the rock contained 99 *per cent.* of pure lime, and other two ſtrata no leſs than 99½ in the 100; and, by the letter above mentioned from Sir G. Mackenzie, it appears that his experiments aſcertained the ſtone to contain from 98 to 98½ *per cent.*, being one *per cent.* below Mr Headrick. He does not mention the nature of the alloy, which Mr Headrick found to be clay, coal and tar; which, he very properly obſerves, cannot well be conſidered as alloy, the two laſt being utterly conſumed in burning the ſtone. Thus, Sir, we may conclude this ſubject, with the application of the well known anecdote of our King James VI., who took it one day in his head to preſide in a Court of law. He heard the arguments of the lawyers on both ſides of the queſtion, equally able and ingenious; when, with ſome ſuch ſtrong act of conviction, as throwing his wig in the fire, he exclaimed, 'The de'ils in the carles, they're baith in the right.'

I have the honour to be, Sir, your moſt obedient ſervant,

Annfield, 10th Jan. 1806. ALEX. LOW.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Curſory Conſiderations on the high Rate of Modern Rents, with ſome Inquiries how ſuch are to be paid.

SIR,

IN one of the moſt wintry-faced days I have ſeen for a long time, will you allow a quondam correſpondent to try to drive away a ſort of liſtleſs *ennui*, by attempting a letter for your Magazine? In theſe enlightened times, when arts and ſciences have almoſt attained their *acmé* of perfection; and when agricul-

ture, in particular, is ſo well underſtood, that the rent of land has riſen to a height above the conception of even proprietors themſelves; what likelihood is there that men of ſuch humble talents as I poſſeſs, will be able to offer any thing for your Magazine worth a ſingle glance of our modern farming adventurers? For if one may judge of their abilities by the greatneſs of the rents they have undertaken to pay, they muſt ſoar in a tract ſo high above my ſphere, that I am afraid it will even dazzle my poor eyes to look at them. Seriouſly, Mr Conductor, the rent of land has got up to a pitch, that I cannot, for my life, conceive how the farmer, who commences his career with no greater capital than what ſuffices to ſet him agoing, will now be able to live by his profeſſion! For, high as the price of wheat is, it quite baffles my powers of calculation, to leave any means of livelihood to the poor farmer, after ſuch rents as are now promiſed, taxes, and other unavoidable expences of farming, are paid. I have the vanity to think that my mode of farming is ſuch as entitles me to rank, at leaſt, not below mediocrity; that my ſobriety and attention are equal to moſt of my contemporaries: but, on ſumming up the profits of laſt year's operations, (a year by the by of more than ordinary emolument to the farmer), I find that the rent my farm would be able to pay in one of my beſt years, is ſo far below what is now engaged to be paid by ſome farmers for ſimilar ſoils, as makes me ſhrink into nothing before ſuch mighty heroes. Really, Sir, in my ſober judgement, wheat muſt now ſell at 40s. per boll, and other grains in proportion, to enable ſuch a farmer as I am to pay theſe rents. But, perhaps, there is ſome new mode of farming, much more profitable than any I have either witneſſed or practiſed, which the preſent high-flying race of farmers have in contemplation, that will ſo far excel any thing before exhibited, as that he who formerly might be conſidered as a Saul among farmers, will now be deemed a mere pigmy. If ſo, may I not expect, for I am not yet too old to learn, that I will ſoon have occaſion to witneſs, in my own neighbourhood, ſuch a diſplay of farming abilities, as will not only prove a ſource of wealth to the exhibiter, but, like an electric ſpark, communicate the ſame energetic power to all around? May it not be expected, Sir, that ſuch operoſe and expenſive operations as draining, liming, and compoſting, will be entirely ſuperſeded, and ſome formerly unknown power in nature be excited to fertilize the barren earth, with little or no trouble to the farmer, and, what is better, at little or no expence? I have heard of ſome great genius in farming, who could fructify a piece of ground with the contents of a chopin bottle. Perhaps ſomething of the ſame kind may now be attempted. If ſo, I heartily wiſh ſucceſs to it; for, truly Sir, the old mode of improving land is a very

ry ſerious buſineſs, as, what with one thing, and what with another, the poor farmer's hand is very ſeldom out of his pocket.

When I firſt began to revolve in my mind the value of farm land, and the profits to be expected from it; though there was conſtantly a great outcry about its dearneſs, yet I always found means to ſatisfy myſelf that a decent livelihood might be obtained by judicious management: But, now, Sir, unleſs ſome ſuch mode, as above hinted at, be ſucceſsfully practiſed; unleſs wheat ſells at 40s. per boll, or the farmer can ſatisfy the cravings of nature by a hearty mouthful of freſh air, I muſt confeſs myſelf unable to find out how he is to live. I am, Sir, your conſtant reader,

SOBRIUS.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Flax Huſbandry of Ireland.

SIR,

HAVING for ſeveral years been engaged in the culture of flax, I devoted a part of laſt ſummer to a tour through the manufacturing diſtricts of Ireland. Here that branch of huſbandry has long been eſtabliſhed over a large extent of the country, and conducted with very conſiderable ſucceſs. As ſome of the proceſſes in this culture, which are followed with advantage, are either unknown to the Scots farmers, or are performed in a very awkward and ineffıcient manner, it might, I conceive, prove of no ſmall benefit, were ſome of your intelligent correſpondents induced to lay before them a plain ſketch of the peculiar management obſerved by the Iriſh peaſantry in this important article. I am the more deſirous it ſhould appear in your pages, becauſe a periodical work on huſbandry, conducted by a practical farmer, appears before the public with manifeſt advantage, and is received with that ſort of deference which is due to experience and authority. The diſcuſſions of actual cultivators regarding the objects of their own profeſſion, however new they may as yet be in the annals of agriculture, are far more likely to prove uſeful, than the writings of thoſe volunteers in this favourite ſcience, who are merely ſpeculative and theoretical. I freely confeſs to you, Sir, that I found with pleaſure your work widely circulated in the ſiſter kingdom; and that the cauſe uniformly given for its popularity, was a degree of confidence placed in the practical ſkill of its conductor.

During my progreſs through Ireland, the ſeveral proceſſes of *ſteeping*, *drying*, and *ſkutching* were in hand, and I think I found a peculiarity of management in theſe ſufficient to affect the ſucceſs of the whole buſineſs, and to confer a decided ſuperiority on the produce of an acre of flax in Ireland over that in Scotland, both in quantity and value. It is no uncommon thing for a farmer in

this country, who wiſhes to make up a ſum for his rent, to ſell a part of his *lint on the foot*, as it is termed; and for this he will commonly receive from thirty to forty guineas per acre.

1. *The Method of Steeping.*—As ſoon as the crop has attained the proper degree of ripeneſs, (which is ſomewhat below your ſtandard of maturity), the flax is pulled, and carried to a ſtagnant pool, dug for this purpoſe moderately deep. It is allowed to remain there only from *five* to *ſeven* days, according to the temperature of the weather. After the fermentation in the *ſteeping* proceſs has been carried to a degree ſufficient to produce the requiſite laxity of fibre, the flax is taken out of the pool, and ſpread *very thinly* on the ſtubble of the hay meadow. There, inſtead of remaining till it is merely dried, it is continued for three or four weeks, till the grower conceives it ready for ſkutching. This blenching proceſs, if I am allowed to call it ſo, which, in Scotland, is either unknown, or continued merely till the crop is dried, has many advantages; the moſt obvious one is, that it enables the farmer, every time he examines it, to aſcertain exactly (by rubbing on his hand) the preciſe point at which the fermentation has arrived, and thus to perceive the tenacity and ſtrength of his flax; while the adheſion of the fibre has been ſufficiently weakened, to admit of the ſkutcher cleanſing it completely of the woody parts. It is, I am apprehenſive, only the practical flax farmer who is able to judge of the importance and delicacy of this part of the huſbandry. It is ſo remarkable, that of two acres of flax, under preciſely the ſame ſeed and culture, and of equal fertility, it frequently happens that the one ſhall yield a produce thrice the value of the other, merely from ſuperior accuracy in aſcertaining the proper line of continuing the ſteeping and blenching proceſſes. In Scotland, therefore, I ſuſpect the practice is faulty and defective; becauſe there the whole proceſs of fermentation is completed by ſteeping alone; whereas, in Ireland, it is begun only in the ſteep, and completed by blenching on the meadow, to that preciſe point which the ſafety of the produce requires.

2. *Smoking and Drying.*—The Iriſh peaſant ſeems to poſſeſs another advantage almoſt equally deciſive in his mode of drying the flax, before he ſubmits it to the ſkutcher or beater. After the lint has remained a ſufficient length of time on the blenching green, it is gathered up a ſecond time into ſheafs, (beats, provincially), and ſeems tolerably dry. In this ſtate it is deemed by the Scots growers fully prepared for the flax-mill; but far otherwiſe by the Iriſh farmer, who never ſubmits it to the hands of the beaters till it has undergone a thorough ſmoking over a peat fire. For this purpoſe, he raiſes, at the back of a ditch, a ſmall hurdle thinly wrought with oſiers, and places it on four poſts of wood, at the height of four feet above the level of the ground. A pretty

ſtrong

ſtrong fire of peats being kindled below, the heat and ſmoke pervades every part of the flax, which is placed perpendicularly above the hurdle. This proceſs is continued, and freſh quantities of flax regularly added, till the whole crop is brought to a ſtate of dryneſs, which, in this moiſt climate, can never be effected by the ſun and the weather alone: by this operation a degree of brittleneſs and friability is produced on the ſtraw, which greatly facilitates the enſuing work, and admits of an eaſy ſeparation of the fibre from the wood. It is evident, that the leſs friction required in ſkutching, the leſs waſte or diminution muſt be occaſioned in clearing the flax; and conſequently, the greater muſt be the grower's produce from the mill. This part of the proceſs is equally delicate with that deſcribed above, and requires, if poſſible, ſtill greater attention on the part of the workmen, ſince it is clear that, by a careleſs management of the fire, the whole crop may be deſtroyed.

3. *Cleanſing and Dreſſing.*—The flax huſbandry of Ireland derives no ſmall benefit from the application of hand-labour in the beating and ſkutching of lint, thus ſuperſeding the uſe of the mill. The moſt careful and expert workmen are not always able to temper the velocity of machinery ſo exactly, as to preſerve flax that has been overſteeped or blenched to exceſs; while the ſteady and regulated *impetus* of the hand-ſkutch can eaſily be modified, as the circumſtances of each caſe may require; a matter of obvious advantage, becauſe the beſt flax mills ſeldom produce an equal quantity of lint, nor equally clean, with that which is obtained by the hand. Beſides this, the price of labour, in this part of the united kingdom, ſtill continues ſo moderate, as to preclude any conſiderable degree of ſaving in expence by the uſe of machinery. In proof of this, the flax millers in Scotland, I find, are charging this ſeaſon from three to four ſhillings for dreſſing a ſtone of flax; while, at the place I am now writing, the ſame quantity is dreſſed by the hand for thirteenpence, or one Britiſh ſhilling. In Scotland, where hands are ſcarce, and the price of labour conſequently high, I certainly would not recommend the diſuſe of the flax-mill; on the contrary, I am perſuaded that it is chiefly owing to our ſuperior machinery, and excellent implements of huſbandry, that we are at all enabled to maintain a competition with our neighbours in the preſent ſtate of our ſkill in flax huſbandry, and ſubjected to the diſadvantage of paying double price for our labour.

4. *Preſervation of Flax-ſeed.*—The laſt peculiarity of management, which I ſhall at preſent notice as advantageous to the flax huſbandry of Ireland, is the invention of a flax barn for the preſervation of ſeed. Enjoying a climate perhaps ſtill more moiſt

and unſteady than that of Great Britain, the farmers here were for a long ſeries of years, unable to ſupply themſelves with this article, and were obliged to commiſſion ſeed annually from America and the Baltic, to ſupply the increaſed demands of an extending culture, to the large amount of 200,000l. Sterling. This annual expenditure of caſh long continued to operate as a drain on the ſtock of the laborious farmer, and prevented the accumulation of his capital; an evil of the moſt ſerious magnitude, under which the Iriſh peaſantry ſtill labour, and from which, till very lately, they had not even a proſpect of relief. By the practice in univerſal uſe, if the farmer ſtored up his lint in the barn-yard with the reſt of his crop in harveſt, he might, it is true, preſerve his ſeed; but in doing ſo, he uniformly loſt his flax to a far greater value from overdryneſs, when wrought in the ſpring.

If, on the other hand, he attempted to ſeparate his ſeed during the lint harveſt by means of the rippling-comb, he had no means of preventing it from being almoſt invariably deſtroyed by the wetneſs of the climate. Various methods had been attempted to overcome this difficulty, but without ſucceſs; till Robert Tennant, Eſq. of Strangmore, linen-inſpector, near Dungannon, contrived the plan of a flax barn, which ſeems perfectly competent to the preſervation of ſeed. It has already been erected, and has proved ſucceſsful on a ſmall ſcale; the ſeed cured in it remained during the winter perfectly freſh, and nothing ſeems wanting to complete this improvement in our flax huſbandry, but a larger capital in the hands of a few of our farmers. This flax barn is conſtructed on wooden poſts, rooſed on the top, but left perfectly open at each ſide; it is ſupplied with various ſtages of floors of baſket-work, placed regularly at two feet diſtance above each other. Thus, the air, having free acceſs to the ſeed on all ſides, preſerves it freſh and well-coloured for any length of time.

This contrivance was ſuggeſted to Mr Tennant, it is ſaid, almoſt caſually, by noticing the great effect produced on cloth, by drying-houſes in bleachfields. He had in fact been employed by the Linen Board of Ireland, in teaching the new proceſs of bleaching to the manufacturers, by means of the oxmuriate of lime; and, in the courſe of ſeven or eight years, this method of whitening linen has been eſtabliſhed over the whole kingdom, with the exception of hardly a ſingle field. Lord Northland and Mr Foſter, who invited this gentleman from Scotland, and patronized him in this part of the kingdom, have enjoyed the ſatisfaction of beholding a more eſſential improvement effected in the linen manufacture, in the ſhort ſpace already mentioned, than had ever taken place in a century before.

It

It was my intention, when I began this letter, to have presented you a more minute description of a flax farm, and to have laid before your readers, a more detailed account of the flax husbandry of Ireland in general. I find, however, that I have already exceeded the ordinary bounds prescribed to the contributors to your useful Work; therefore conclude, with expressing a hope, that the few hints already offered, will incline some of your correspondents to treat of a subject certainly of sufficient importance to merit attention. For a branch of husbandry cannot be deemed contemptible, which affords sustenance to upwards of two millions of people; and which, at the same time, adds to the general resources of the empire, no less a sum than seven millions sterling annually. These circumstances, too, I trust, will plead my excuse for holding up a portion of Irish husbandry to the imitation of your numerous readers among the cultivators of Scotland, who are at present justly celebrated for their agricultural knowledge in every part of the world.

Dungannon, 29th September 1805. HIBERNICUS.

NOTE.

The CONDUCTOR will be proud to receive a continuance of this gentleman's correspondence.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Manufacture of Dunlop Cheese.

SIR,

HAVING observed in the fourth volume of your Magazine, an essay (dated Dalry, 3d June 1803) upon the manufacture of Dunlop cheese, I beg leave to observe, that the account which the writer gives of the process of making the cheese, is very correct; indeed, I am much pleased with it. The present address is not to animadvert upon it, but to point out an abuse which is sometimes committed in the manufacture of the article. What I mean to mention, is a custom some people have got into, which is executed in the following, or a similar manner. The cows are milked at night, and the milk is put into vessels till next morning about eight o'clock, when the cows are again milked. What was milked on the night before is now skimmed, and the cream put into a churn for the purpose of making butter, while the skimmed milk is added to the new milk, and made into cheese. This impoverishes the cheese, and the maker has an illicit profit in butter, by which means he is able to undersell the fair and honest dealer. The cheese, when brought to market, brings a reproach upon the trade; and when that which has

been honeſtly manufactured is offered, it is ſuſpected. By this abuſe, the character of the manufacture in general ſuffers; the perſon who acts honeſtly is underſold, whilſt the perſon who acts otherwiſe is rewarded, in having butter to ſell as well as cheeſe. The ſuperior manner in which cheeſe is made in the pariſh of Dunlop, and ſeveral pariſhes round it, has enriched the tenant, and enabled him to pay a higher rent to the proprietor of land than could have been done in any other way. What pity, therefore, that abuſes prevail, which cheat the conſumer, hurt the fair dealer, and ultimately will ruin the buſineſs!

If you pleaſe to inſert this in your uſeful Magazine, it may induce ſome of the guilty to deſiſt from the practice, and ſurely cannot hurt the honeſt maker of cheeſe, while it will oblige a number of your readers, and none more than, Sir, your obedient ſervant,

Dunlop, 15th November 1805. ALFREDA.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Letter from Mr M'Neil of Collonſay on Moſs Huſbandry.

SIR,

IN your laſt Number appeared a communication from a gentleman in Iſla, reſpecting an improvement on moſs made by me on two of my farms in Collonſay. However much I may conſider myſelf obliged to that gentleman for the very high encomiums he is pleaſed to beſtow on my attempts at agricultural improvement, I cannot help regreting his having omitted to mention the *particular manner* in which this experiment was conducted; almoſt the only part of a communication that can be intereſting or beneficial to the reader. The information, that ſo much barrenneſs has been reclaimed, and, from being a *caput mortuum*, forced to contribute its full ſhare in ſupporting thoſe who live on its produce, will, no doubt, give a certain degree of pleaſure to the public in general; but this is by no means ſatisfactory to the practical farmer: he muſt know *in what manner* it was done; what advantages or diſadvantages attended the proceſs, and every other particular regarding it, with a view to adopt or improve upon the ſame method in his practice. To ſupply this omiſſion in your correſpondent's paper, I beg the admiſſion of this letter, the ſubſtance of which formed a communication to the Hebridean Farming Society, lately inſtituted in this quarter, and obtained the prize given by the Highland Society, for the improvement of moſs land.

The land which was the ſubject of this experiment, conſiſted of a moſſy ſoil of various thickneſs, on a ſubſtratum of the fineſt ſhelly

ſhelly ſand. The ſurface being nearly a perfect level, and the ſtagnant water, while it remained in its natural ſtate, rendering it almoſt wholly unproductive, the proceſs, of courſe, commenced by cutting drains in various directions, and to ſuch a depth, as effectually to carry off the ſurface-water. In the end of harveſt and the beginning of winter, it was ploughed with a ſingle furrow, and where the ſoft and uneven nature of the ground rendered the aſſiſtance of the plough of no avail, levelled with the ſpade. In the courſe of the ſeaſon, a quantity of ſhell-ſand, to the amount of twelve and one fifth tons per acre, was ſpread over the ground; and, laſtly, it was completely covered with ſea-weed, known in this part of the country by the name of *black-wreck*; a part of the proceſs attended with much labour and fatigue, as none having drifted aſhore that ſeaſon, it behoved to be cut and brought in boats from a great diſtance.

Thus prepared, the whole reclaimed land was laid out for a potato crop; and after covering the ſea-weed with ſoil from the furrows, the plants were dibbled in, at the rate of a ton and a half per acre. In conſequence of the above management, a crop of twenty tons per acre was produced. In ſpring laſt, for the ſecond crop, I ſowed on the ſame land five bolls oats, Kintyre meaſure, the boll correſponding with the Engliſh quarter, and this harveſt, have obtained at the rate of 100 ſtooks per acre. The crop being yet unthraſhed, prevents my giving the exact produce in clear grain.

The other piece of moſs, which was in a different farm, was alſo reclaimed the ſame ſeaſon, and with equal ſucceſs. This land was in a much worſe ſtate than the former, as it was not only flooded with water, but entirely overgrown with reeds, the numerous and ſtrong roots of which rendered the ſpade-work, (the uſe of the plough was out of the queſtion) inconceivably laborious. The ſurface of the land was in ſuch an uneven ſtate, that it was neceſſary to carry ſods, &c. to fill up the numerous inequalities; and, from the impracticability of employing horſes in ſuch ſoft ground, all the manure uſed was carried to the ſpot in hand-barrows. As the other parts of the proceſs, in this laſt experiment, were carried on in ſtrict conformity to the method recommended by Mr Smith of Swinridgemuir, to detail them here is unneceſſary. It may be remarked, however, that the complete ſucceſs which attended this part of the improvement, independent of the immediate advantage to the proprietor, is of importance alſo, as confirming the propriety and excellence of the method adopted by that intelligent agriculturiſt for the improvement of moſs lands.

I have only to add, that, from the excellent crops obtained from theſe lands this ſeaſon, there is every reaſon to believe that the improvement of them will be permanent. I am, SIR, your conſtant reader,

Collonſay, 15th October 1805. J. M'N.

NOTE.

The CONDUCTOR offers his beſt thanks to Mr M'N. and will be happy to hear from him concerning Hebridean huſbandry in general, and whether it is of late materially improved.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Queries concerning different Branches of Huſbandry, with Anſwers thereto.

SIR,

THE following Queries, ſent me by a friend in Wigtonſhire, with Anſwers thereto, are ſubmitted to your conſideration. Whether any information of importance will thereby be communicated to the great body of your readers, may be problematical; but as my friend requeſted that the *Anſwers* might be tranſmitted to him through the medium of your Miſcellany, I only obey his orders when giving you this trouble. At the ſame time, I cannot avoid remarking, that a communication of this nature ſtands a better chance of being uſeful when preſented all at once, than if queries appear firſt, and anſwers at a diſtant period, or when the original cauſe of inquiry may be in a great meaſure forgotten. I am, yours, &c.

ARATOR.

Qu. 1. What rotations are found moſt advantageous on ſoils in general, excepting heavy clay, or coarſe lands?

Anſ. Generally ſpeaking, the merit of every rotation whatever depends on the attention ſhewn in executing the various proceſſes connected therewith; but, under the ſuppoſition that good management is followed out, I conſider the ſix courſe ſhift, on ſoils of tolerable quality, and which have a mixture of clay, to be moſt beneficial. The crops may be varied, according to climate and local circumſtances, but thoſe I am diſpoſed to prefer are, 1ſt, Fallow; 2d, Wheat; 3d, Peas and Beans; 4th, Barley; 5th, Clover; 6th, Oats.—Or, 1ſt, Fallow; 2d, Wheat; 3d, Clover; 4th, Oats; 5th, Peas and Beans; 6th, Oats, or on good land, Wheat. If dung can be applied twice during the ſhift, the firſt ſequence is moſt advantageous; but otherwiſe, the

the ſecond muſt be reſorted to, for clover in common caſes cannot be looked for ſo far from dung.

On lighter ſoils, the Norfolk ſyſtem is undoubtedly highly advantageous. 1ſt, Turnips; 2d, Barley or Oats; 3d, Clover; 4th, Oats or Wheat. In this, as well as other ſhifts, the graſs break may lye undiſturbed for two or more years. The great body of ſoils, particularly thoſe of a light nature, are eaſily exhauſted when conſtantly ploughed; therefore, I am inclined to think that preſerving land under graſs, for two or more years, is abſolutely neceſſary, otherwiſe deterioration will unavoidably take place, and the corn crops be leſſened. Exceptions there are to this rule, for ſome fields will do a great deal without ſuffering much; but on examination, it will always be found that ſuch have either been tenderly dealt with in former times, or have recently received a firſt doſe of calcareous manure. Laying theſe exceptions aſide, I repeat, that keeping land in graſs more than one year is abſolutely neceſſary.

Qu. 2. Have you ever ſeen land tire of a rotation that appeared judicious, when that rotation was long perſevered in; the crops becoming more liable to fail than at firſt, and clover itſelf more defective? If this ever happens, would you not not approve of laying the land out into paſture for ſome years? Do you ſuppoſe that expedient would recover it?

Anſ. Regular rotations are of ſo recent a date, that this query can hardly be anſwered with preciſion. I have ſeen land tire of wheat, and alſo of clover; but I cannot venture to affirm that ſuch actually occurred where a regular rotation was adhered to. At the ſame time, I underſtand that the Norfolk farmers think that neither turnips nor clover are now ſo certain crops as when firſt introduced, therefore, am inclined to believe that the like will happen in every other place where the ſoil has not ſtrong ſtamina, or where foreign manure cannot be procured. But if the land is actually tired, or, which is the ſame thing, refuſes to produce good crops of grain, no alternative remains but to put it into graſs, when undoubtedly it will improve itſelf conſiderably; though the degree of improvement will be exactly in proportion with the condition in which it is ſown down, and the nature of the ſoil itſelf. Some ſoils are much more enriched by graſs than others; thoſe of a thin clay ſubſtance are leaſt benefited by this general reſtorative; therefore, ſuch will never be exhauſted by a good farmer, unleſs compelled thereto by imperious neceſſity.

Qu. 3. What is your mode of pickling ſeed wheat? and do you conſider this operation always neceſſary?

Anſ.

Anſ. Pickling of ſeed-wheat, I conſider to be a proceſs which at no time can ſafely be neglected by the farmer; for the diſeaſe which generally follows the neglect, is as great a diſgrace to the agriculturiſt, as the venereal diſorder is to him who claims the character of a good moraliſt. My plan of prevention is, to ſprinkle the ſeed with urine, the older and ſtaler ſo much the better, and to riddle hot or new ſlacked lime inſtantly on the heap. It would be preſumption to ſay in what way this application prevents ſmut; though nothing is more true than that this baneful diſorder will not occur where pickling in this way is performed with any kind of accuracy. When I firſt entered upon the profeſſion, like many others, I laughed at pickling, and uſed to call it quackery and the like; but a few years' experience ſatisfied me that ſuch opinions were erroneous. Since I reſorted to pickleing, I may have had a ear or two ſmutted, but never any thing which in the ſmalleſt degree injured the crop; whereas, with thoſe who neglected to uſe preventives, I have noticed loſſes from 5 to 50 *per cent.* by ſmut, independent of the trouble thereby occaſioned, and the conſequent loſs of character, which, like cauſe and effect, neceſſarily attached to thoſe ſo circumſtanced.

Qu. 4. How early have you been accuſtomed to ſow wheat upon ſummer fallow? Have you not experienced that the earlieſt ſown is generally the moſt productive?

Anſ. I have ſown wheat ſo early as the 20th of Auguſt, but cannot, from the reſult, recommend that ſeaſon. Indeed I think a month later ſufficiently early; and am inclined to believe that, on rich ſoils, it is preferable to delay ſowing till the firſt week of October. Various reaſons might be given for this aſſertion, but I confine myſelf entirely to the following one, namely, that the young plants generally get too forward before winter, and are afterwards much more injured by the ſeverity of that ſeaſon, and the piercing ſpring winds, than thoſe of a later growth. If the plant is only provided with good ſeminal roots before winter, no more is neceſſary during the ſpace it may be conſidered as remaining dormant or inactive, which uſually continues till the end of March, or beginning of April in the ſucceeding year, oftener much later, in adverſe ſeaſons. When ſown early, the tillering proceſs generally takes place before winter, and of courſe, the plant rarely tillers when genial weather arrives in the ſpring months; whereas that period is the one beſt calculated for ſending out durable coronal roots, ſuch as will ſecure a good crop.

With regard to the ſecond branch of this query, I cannot ſay that the earlieſt crops of wheat have been moſt productive with me; though I admit that, on hazardous ſoils, it is good management

ment to ſow wheat after the firſt week of September; becauſe, when ſuch ſoils are fully ſaturated with moiſture after that time, they are rarely found in a good condition for that ſeaſon. Thin clays make ſmall progreſs for a conſiderable period; and the ſecond week of September is not earlier for them, than the firſt week of October is for richer ſoils. Now when wheat is extenſively ſown, it is found neceſſary to continue ſeed-work even to the middle or end of November, eſpecially on the bean, peaſe, and clover ſtubbles; and it is only on ſummer fallows that early ſowing can be practiſed.

Qu. 5. Are you not acquainted with a peculiar ſpecies of wheat, adapted for ſowing in the ſpring? How late is it prudent to ſow it; and is it in appearance, any way different from winter wheat?

Ans. There is a ſpecies of wheat which will ripen, in Scotland, even when ſown ſo late as the middle of April; but the quality thereof is not good, being coarſe, huſky, and in no reſpect comparable to the varieties uſually cultivated A ſmall parcel of this early wheat, received from the Board of Agriculture per favour of Sir Joſeph Banks, Bart. was laſt April ſown in Eaſt-Lothian, and the reſult juſtifies what is here ſtated. Twenty-five years ago, ſome of the ſame variety was imported from Dantzick; but, after being ſown for ſeveral ſeaſons, was given up as unprofitable and unproductive.

Qu. 6. Have potato oats degenerated with you ſince their introduction? Are they nothing later in ripening, or ſtiffer on the ear, and not ſo eaſily ſhaken; of courſe, more difficult to thraſh?

Ans. Potato oats have not been cultivated for more than five years with us; and were I to anſwer the query from conſiderations of their productiveneſs, either in grain or meal, I would at once reply that they had not degenerated. But, in another view, I admit that, in moſt caſes, a degeneracy is viſible, becauſe that few ſamples are free of mixture; therefore freſh ſelections are indiſpenſable, otherwiſe this valuable variety will ſoon degenerate in *every* reſpect. No alteration in the time of ripening or in the quantity of ſtraw is yet diſcovered. Indeed, potato-oats were not extenſively ſown ſooner than 1802; therefore a material change in their conſtitution has not yet occurred, where any attention has been paid to procure them pure and unblended.

Qu. 7. What kind of oat do you find moſt advantageous in common practice?

Ans. The potato-oat is undoubtedly the moſt valuable on every ſoil of tolerable quality, though, as it affords leſs ſtraw than

the

the Angus and Blainſley varieties, this may be a conſiderable objection on inferior ſoils. The red oat is advantageous in high ſituations, or where the climate is late. Under different circumſtances, where it is not thought adviſable to ſow potato-oats extenſively, the Angus or Halkerton variety is preferable to the Blainſley, or old Scotch oat.

Qu. 8. Whether do you approve moſt of barley or bear in common culture? Does not the firſt require earlier ſowing and a richer ſoil? Suppoſing a field in which the ſoil and management are entirely equal, ground fertile and well prepared, what would you conſider a fair average crop of each, and what the difference per acre? It may be alſo added, How late do you think it prudent to ſow theſe kinds of grain? In Wigtonſhire, the lateſt ſown here is often the beſt crop.

Ans. I approve of barley where climate will ripen it ſufficiently; but, under different circumſtances, bear or big may be moſt profitably cultivated. Where a correct rotation is followed, barley ſeed may, in general ſeaſons, be finiſhed before the firſt of May, which gives full time for its growth, and the ſmall quantity ſown after that period is not a material object. I have ſeen barley ſown ſo late as the firſt week of June, and though the quality of the crop was inferior as to grain, yet there was little deficiency as to bolls. A general remark may be made. Every ſpring crop ought to be ſown as early as poſſible, if good grain is expected, though there is no doubt that a greater bulk of ſtraw is often got from a late than an early ſeed time.

Qu. 9. What have you been accuſtomed to conſider a fair average crop per acre, of wheat, of oats, of beans, of barley and of bear? It may be alſo added, Of hay from ſown graſſes?

Ans. This is a difficult queſtion. In general, it may be anſwered that 32 buſhels of wheat, 42 buſhels of barley, 48 buſhels of oats, 30 buſhels of beans, and 200 tron ſtones of hay, are fair average crops per acre, Scotch meaſure. Some people may have more, but many others have leſs; and a farm muſt be in a pretty high condition, and under decent management, to juſtify the expectation of ſuch averages as are mentioned.

Qu. 10. What quantity of potatoes do you commonly plant upon an acre, and what do you conſider as a fair return?

Ans. From nine to twelve Linlithgow barley firlots of potatoes heaped, are required to plant an acre of ground ſufficiently, unleſs the ſeed is cut ſmall, which is not a good practice. The weight of the above quantities may be from 900 to 1200 lb. avoirdupois, according to ſize and condition. A fair average return will not exceed forty bolls, or eight tons per Scotch acre.

Qu.

Qu. 11. What quantity, or weight of turnip ſeed do you uſually ſow upon the acre, and what do you conſider the crop raiſed upon an acre ought to weigh, when drawn, allowing the crop to be good? Is not thick ſowing the ſureſt preventive from the fly, and the ſafeſt mode of obtaining a crop?

Ans. Two pounds of turnip ſeed are generally ſown to the acre, though leſs will do where the ſoil is well wrought, and the ſeaſon genial. Thick ſowing has both its advantages and diſadvantages. By forcing the young plants rapidly forward, danger from the fly is in ſome meaſure avoided; but then, if wet weather ſet in when the young plants ought to be thinned, that proceſs is executed at greater expence, and with more hazard, than when the plants are not ſo numerous. From fifteen to twenty tons per acre, is a fair crop, though in ſeveral inſtances a greater return has been procured.

Qu. 12. Do you obſerve any material difference betwixt your crops after turnips and potatoes? Is the crop more apt to fail after the one than the other? Is the difference viſible on the brairding of the crop; and at what time is it moſt conſpicuous? Do inſects depredate more upon the one than the other? Do you underſtand that potatoes are robbers of the ſoil, and that a rotation in which potatoes often recur, is much more injurious than a rotation in the turnip ſyſtem—always ſuppoſing an equal quantity of manure to be applied with each? Theſe queries ſuppoſe that the turnips are drawn, and not fed off with ſheep; this latter practice not being yet introduced into Wigtonſhire.

Ans. Though potato land is ſeldom ſo well cleaned as turnip land, yet the ſucceeding crop of grain is generally more certain, which is owing to potatoes being taken up at a period admitting the ground to be ridged up for melioration in winter. This benefit, to be ſure, might be gained, were all turnips ſtored; a practice highly uſeful in a certain degree, but almoſt impracticable where turnip culture is carried on extenſively. I conſider both potatoes and turnips to be robbers, with this difference, that the latter return a great deal of more dung for recruiting the ſoil, therefore ultimately of greater benefit to the farmer, though perhaps yielding leſs profit in the firſt inſtance.

Qu. 13. What do you conſider an acre of good turnips worth for feeding?

Ans. The profit on turnips depends altogether on the ſtate of markets at the time of buying and ſelling. Hence a good crop of turnips may be conſumed without the grower partaking of much benefit. If we ſhould ſuppoſe markets to remain ſtationary, which is the fair way of judging, then I am inclined to believe,

lieve, that from five to ſix pounds Sterling may be the value of an acre of good turnips. Far greater profits have no doubt occurred in particular ſeaſons; but theſe proceeded entirely from the circumſtance hinted at in the firſt part of this anſwer.

Qu. 14. Do you think moſs compoſt anſwers well, according to Lord Meadowbank's method?

Ans. I am a great advocate for compoſt middens, but would like a better article than moſs as the chief ingredient. Alluvial ſoil, marly clay, deep and rich headlands, old garden ground, and the like, may be uſed as the baſis of ſuch middens with eminent advantage.—So far I ſpeak from extenſive experience. With regard to moſs, I cannot pronounce any opinion grounded on facts; therefore forbear ſtating my ſentiments on that point.

Qu. 15. What kinds of graſſes do you uſually ſow for paſture, and what quantities of each kind do you ſow upon the acre?

Ans. White clover and rye-graſs appear to me as our beſt graſſes; and if a ſmall quantity of red and yellow clovers are added, then a regular ſequence of food may be obtained for cattle and ſheep from April to November. I have been in the habit of ſowing 12 lib. white, 4 lib. red, and 2 lib. yellow clover to the Scotch acre; ſometimes more, according to circumſtances; for I am almoſt of opinion, that a paſture field cannot be planted too thick. Alongſt with theſe, I give from 2 to 4 pecks beſt rye-graſs. It is obvious, however, that the growth of theſe ſeeds depends much on the previous preparation given to the ground, and on the attention given to the covering of them. Even the ſtrength of the crop with which they are ſown, regulates the ſucceſs of graſs ſeeds, in ſpite of every care previouſly taken; and the young plants are often ſmothered by their ſtepmother, inſtead of being preſerved and trained till able to ſhift for themſelves.

Qu. 16. In ground intended to remain many years in paſture, do you think mowing proper, viz. taking one crop of hay?

Ans. I am decidedly of opinion, that where paſture is the ultimate object, no ſcythe ought to be admitted in the firſt ſeaſon. Beſides, ground intended for hay ſhould be ſeeded in a different ſtyle than when the crop is to be depaſtured with beſtial. Leſs ſeed ſhould be ſown, otherwiſe the crop will not grow to any length; and even theſe ſeeds ſhould be different, red clover and rye-graſs being only required to produce a good hay crop.

Qu. 17. Can you, by ſight, diſtinguiſh perennial rye-graſs ſeed from what is annual; and how do you deſcribe the difference? Can the graſſes be diſtinguiſhed when growing? Do you know any variety of red clover more permanent in the ſoil than the kind moſt commonly ſown? Do you approve of yellow clover, commonly called trefoil? Do you approve of rib-graſs? Is not white

white clover (ſhamrock) the beſt of all graſſes in paſture, though not of an early ſpring?

Ans. Annual rye-graſs is uſually larger in the body than perennial ſeed, and perhaps is of greater weight. It likewiſe is of a taller growth; and I know no other rule for diſtinguiſhing it, except theſe two particulars. Where one year's graſs is only wanted, I would have no objection to annual rye-graſs; but heavy loſſes have been ſuſtained, in many caſes where fields are preſerved in paſture, from uſing this variety. Even when got from a field cut the *ſecond* year, which is the common criterion, no abſolute dependence can be placed on its kind; for ſo much is uſually ſhaken the firſt year, as to inſure a ſecond year's growth; a circumſtance rarely occurring when a field is depaſtured.

I know of no other variety of red clover which will remain more permanently in the ſoil than the kind commonly ſown. Yellow clover is not a favourite with me, as beaſts are not overfond of it; though, as it is a hardy plant, and flowers at a different time than other clovers, I commonly ſow a little of it. I am not fond of rib-graſs neither. Undoubtedly white clover is the beſt of all graſſes for a paſture field.

Qu. 18. How many pounds weight of red clover do you ſow upon an acre for green food, and what proportion of ryegraſs along with it? Is it not an improvement to add a little yellow clover or rib graſs?

Ans. This query is in part anſwered already. I commonly ſow 15 lib. of red clover and 2 pecks beſt rye-graſs to the Scotch acre, when intended for hay or ſoiling.

Qu. 19. In a farm all or moſtly arable, ſuppoſing a field or two ſet apart for water-meadow or conſtant paſture, would you allow or approve of the other fields being paſtured a year or two in ſucceſſion, field after field, betwixt every courſe of tillage and cropping? or would you think it better to manage the different fields, ſo as to plough up always a clover lea, after finiſhing the ſeaſon's cutting? and would you not recommend feeding off the aftermath, or ſecond growth, with cattle, rather than mowing, except where the latter mode could not be avoided?

Ans. I have already ſaid, in anſwering the firſt query, that paſture for more years than one, is abſolutely neceſſary on the generality of ſoils, though I am clear that, in certain ſituations and circumſtances, one year's graſs is moſt beneficial to the farmer. If land which carried clover and rye-graſs is to be ploughed after one year's growth, I do not think that the leaſt damage will be ſuſtained from cutting it either twice or thrice in that year, providing it will ſtand the ſcythe ſo often, and that the graſs is conſumed on the premiſes. Many of the inferior ſoils, however,

will not cut a ſecond time; therefore, a neceſſity ariſes for paſturing the aftermath, though I cannot view ſuch a circumſtance as in the leaſt advantageous to the ſucceeding crop of grain.

Qu. 20. Do you think peas may be cultivated with advantage? In raiſing them, would you ſow broadcaſt by themſelves, or rather mix a proportion of peas with your ſeed beans, and ſow in drills, ſo as to get the intervals hoed? In practiſing this latter method, what do you think a proper proportion of the one and the other?

Ans. Peas broadcaſt are rarely raiſed with profit, unleſs on new limed lands, where heavy crops are often got, eſpecially in mild, dry ſeaſons. On ſoils of decent quality, I would prefer the drill ſyſtem, mixing beans with them in certain proportions, according to the ſtrength and condition of the ground. This, at all events, ſerves to preſerve the ground in good order, which is an important matter; and the proportion of beans may be from one third to two thirds of the ſeed ſown. Very fine crops of peas and beans are now got in this way on thin ſoils, even in caſes where the beans did little more than ſupport the peas; and the fodder ſo raiſed is much more nutritive and healthy for horſes, than what is obtained in the broadcaſt ſyſtem.

A——

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

BY way of variety, I ſend you a ſpecimen of the Report of a Debate in our minutes, where no written eſſay had been given in. Though the queſtion related to a particular ſtate of facts, the general principles upon which it was argued may give riſe to uſeful diſcuſſion in your Magazine. My conſtituents wiſh proſperity to your labours. I remain your moſt humble ſervant,

The Secretary of Eddleſtone Farmer's Club.

At ****, *the* 10*th Auguſt* 1804.

THE queſtion appointed for diſcuſſion was taken up, viz. 'What are the cauſes of the preſent great reduction of the prices of cattle and of ſheep?'

The notion, of its originating *in the interruption given to the ſpeculations of droving middlemen, from the limitation of diſcount at the banks*, was conſidered.

It ſeemed to the meeting, that to attribute the effect, in any conſiderable degree, to ſuch a cauſe, would be to aſcribe an importance and ſupremacy of operation to bankers and other middlemen

dlemen which did not belong to them. That the real effectual demand for cattle of every deſcription muſt come from the actual conſumers of fleſh, or from intermediate graziers, for farther fattening, with an ultimate view to the ſupply of the actual conſumers; and that prices muſt neceſſarily depend upon the proportion of the exiſting ſupply to this actual demand. That unleſs it was found the conſumers of fleſh were getting into the habit of diminiſhing their conſumpt of that article—of which there was no appearance; or, unleſs fattening-graziers were retaining their graſs fields vacant—which ſeemed equally improbable; it would appear moſt natural to aſcribe the fall in price to the overplenty of the commodity, which had cauſed the ſupply to exceed its former proportion to the demand. That the dearth of fodder, from the extreme ſcantineſs of that article in the crops 1799 and 1800, had occaſioned great deſtruction, by hunger, or by the butcher, of all animals needing winter fodder; that, though leſs of winter fodder is needed by ſheep, yet *their* numbers, too, had been greatly thinned, through the peculiar inclemency of ſpring 1799; that, of courſe, through real ſcarcity, all deſcriptions of paſturing animals had become enormouſly dear; that even breeding ſtock had been encroached upon, through neceſſity or temptation of high prices, ſo as not to yield the uſual return of annual increaſe: But that, as ever has happened, and ever will, dearth had of courſe brought about cheapneſs, and ſcarcity plenty, from the univerſal effort, through temptation of exceſſive price, to produce ſupply. That, in fact, the very ſame thing had already happened, though ſomewhat earlier, in regard to grain; the dearth, occaſioned by the ſcanty crops of the ſeaſons before mentioned, having directed every effort to the raiſing of ſuch a well-ſelling commodity as grain, (ſometimes under colour of patriotiſm, at other times in the naked profeſſion of obtaining profit), till avarice had defeated its own end, and the commodity had been produced in ſuch overabundance as to become a drug: But that, as grain is much ſooner multiplied by crops, than animals by propagation, the effect had come ſooner round in regard to grain than to cattle.

It was indeed obſerved, that, in our cattle fairs, which were no more thronged than uſual, no appearance was exhibited of an exceſs of ſupply above the uſual demand. It was however acknowledged that this appearance might be fallacious: For that, upon the ſuppoſition (known indeed to be true) that farmers, who formerly bought in at our fairs, without breeding themſelves, had been tempted to have recourſe to breeding on account of the high prices, there might be, from the withdrawing of *their* demand, an over-proportion of ſupply in the market to the real de-

mand, even although the numbers of cattle preſented ſhould fall conſiderably ſhort of the uſual ſhow.

If we conſider and analyze all the poſſible operations of drovers, bankers, and ſuch ſort of middlemen as uſually intervene betwixt the raiſer of the commodity and its actual conſumer, it does not appear that they can have much effect upon the price of commodities. Indeed, the general effect of their operations, to which, in fact, they owe ſolely their exiſtence as a diſtinct claſs who can live by their peculiar profeſſion, is to heighten the profit of the raiſer of the commodity, and to leſſen the expence of the conſumer,—by ſaving to them both the time, the labour, and the expence, which their immediate meeting together would occaſion to both, and which by both might be much more profitably employed. Were they not thus equally profitable to both, their office would be ſuperſeded, and buſineſs would be tranſacted without their intervention; for, poſſeſſing no legal privilege of monopoly, and as little facility of combination, their only tie upon their employers conſiſts in the intereſt theſe find in the facilities thus obtained by employing them.

The ſpeculating drover conſtitutes a great accommodation both to the raiſers of the commodity, and to thoſe who have the real demand for it. He brings the price to the commodity in the hands of the former, and brings the commodity to the price ultimately paid for it by the latter: He derives a profit, very properly, for the convenience he affords, as a carrier or merchant, to both producer and conſumer. If he attempts to extort too much for this convenience, the real ſeller and buyer will rather diſpenſe with the convenience, and tranſact perſonally without his intervention; or, as he poſſeſſes no excluſive right to employment, others, willing to trade upon leſs profit, will riſe up in competition to him. In ſhort, (as in all other profeſſional employments not excluſively confined to a particular claſs), where the profits of the employment are high in proportion to that of other profeſſions, the high profit will attract more people into the employment, till their mutual competition reduces the profit to the level of that of other profeſſions.

The ſame obſervations will apply to the buſineſs of the banker, whoſe employment, alſo, depends upon the like facilities of accommodation afforded to the raiſing ſeller and the ultimate conſuming purchaſer of commodities. He advances, by diſcount of bills, (which is underſtood to be the moſt material branch of banking buſineſs), that price which the ſpeculating merchant carries to the commodity in the hands of the producer; and, by thus ſharing in his employment, he divides the profit of it with him.

In the fall of cattle, prices, from their already attained over-

plenty,

plenty, it muſt neceſſarily have happened that many ſpeculating drovers, having bought dear, and ſelling to falling markets, muſt have become bankrupt—a caſualty that, of a date ſomewhat prior, befel corn merchants, and from the ſame cauſe; for the real market price of the commodity (which ſolely depends upon the proportion of the ſupply to the demand) muſt ever regulate the profits of middlemen, and not their profits the market price—elſe, indeed, bankruptcy among ſuch middlemen could not be an event in the ordinary courſe of nature. In conſequence, then, of ſuch bankruptcies, bankers are arouſed into meaſures of greater caution in regard to diſcount of bills. But though this may occaſion temporary inconvenience, from ſtagnation of buſineſs, it is very ſpeedily got over; probably from the place of ſuch intermediate tranſactors as need diſcount of bills being occupied by people of capital needing no diſcount; or by perſons of ſuperior credit, whom the banks can more ſafely truſt, ſtepping into the employment of thoſe, whoſe operations the banks have ſuſpended, by withdrawing their credit. If, then, by ſuch means, the commodity ſtill eaſily reaches its ultimate deſtination—if the conſumer ſtill uſes his accuſtomed quantity of food—if the grazier ſtill readily obtains his uſual numbers of cattle to depaſture his graſs,—it would appear, that nothing occurring betwixt the banker and his ſpeculating cuſtomer for diſcount of bills, had materially interrupted the progreſs of the demand towards the ſupply; that there is no deficiency of the uſual demand; but that it is merely the over-proportion of the ſupply to the demand which has occaſioned the depreſſion of prices.

Could we indeed ſuppoſe that money had become ſcarce, with the ſame ſuddenneſs in which prices have been depreſſed, this ſcarcity and conſequent dearth of money might readily account for a proportional depreſſion of the money price of every vendible commodity. The variations, however, in the quantity, and, of courſe, in the value, of money, appear not to be ſuſceptible of any ſuch ſudden changes as thoſe of cattle and of corn. By univerſal conſent of all political economiſts, money has been and ſtill is ſinking in value, becauſe increaſing in quantity, throughout Europe; which might account for a progreſſive riſe in the money price of every thing, but never for a depreſſion, or for a ſhortcoming of the demand to the quantity of ſupply. F.

TO THE CONDUCTOR OF THE FARMER'S MAGZINE.

Hints by the Banffſhire Ploughman.

SIR,

YOUR Magazine having fallen into my hands laſt week, for the firſt time, and obſerving that it was chiefly compoſed of communica-

tions from the country, I determined to have a hit at it myself, ignorant and unlettered as I am. Nor disdain the pen of the *rustic ploughman;* for when Thomson, in your motto, bids you 'venerate the *plough*,' he surely does not wish that the '*lords of the plough*' should be neglected.

In this part of the country, the farms are daily increasing in size and fertility, chiefly owing to the disuse of ancient customs; and I am informed that your Magazine has had a powerful effect in this instance. Yet many still exist, which the slightest observation would shew to be contrary to the interest of farmers. Innumerable are the disadvantages arising from the continuance of these. I shall only at present trouble you with what more particularly regards myself and fellow ploughmen in this corner of the isle. I mean the custom, in practice here, of making the ploughmen undergo all the drudgery of the farm; such as thrashing, (for 'the weary flinging tree'* is still more common here than thrashing mills), shearing, turning dunghills, &c. &c. Must it not be galling for a young fellow like me, Mr Editor, after following his plough and darling horses for a whole morning, to be obliged to wield the flail in a dusty barn till yoking-time again, while my horses are resigned to some careless cowherd, ignorant and unintersted in their welfare? There they remain, unfed, uncleaned; in short, in a state very unfit for undergoing the afternoon's service. Would it not be better (and I am informed it is the case in your more southern country) that every one should attend to his own business—the ploughman to his *plough*, and the thrasher to his flail—without interfering with another's? Thus every one would excel in his own particular craft; every thing would be carried on with more regularity and promptitude. Now, instead of being confined to the barn or dunghill (as at present) in the interval of labour, would it not be better for me, for my horses, and more advantageous for my master, if I were to attend my horses, of which the feeding, cleaning, and other necessary relative duties, would occupy all the forenoon? Thus both ploughman and horses would be abler for the afternoon's labour, and could afford to go longer. Were I to enter into any contrast between the plan I propose and the present, I could easily shew (and indeed it must be obvious to every one) the superiority of the former in every respect. The greater quantity of land turned over by the former method needs no proof. Besides, the horses will be in a better condition, notwithstanding the superior labour, by being better and more regularly fed and cleaned; not mentioning the fine ridges and straight furrows we would make,

* 'The weary flinging tree.' BURNS.

make, having nothing but our *bays* and ploughs (our ſceptres!) to attend to. Theſe, Mr Editor, are a few hints, which, if you can make any thing of by poliſhing up, (for although I have been accounted the beſt ſcholar in the country ſide, I can never ſuppoſe that I can write any thing worth printing), ſo as to appear in your next Number, you will much oblige

A BANFFSHIRE PLOUGHMAN.

NOTE.

WE are in duty bound to acquaint our north country friend, that the plan of work ſuggeſted by him is the one now adopted in all the ſouthern diſtricts, and that it is aſcertained, beyond diſpute, to be beſt calculated for the advancement of huſbandry; conſequently, ought to be univerſally followed.

FOR THE FARMER'S MAGAZINE.

Fourcroy on the Philoſophy of Vegetation.

PART III.

On the Influence of Manures on Vegetation.

1. IN the former diviſion, it was ſhewn, that pure ſingle earths, properly or chemically ſo named, do not directly ſerve the purpoſes of vegetation: That water was the only ſubſtance which, by itſelf, was capable of ſupporting vegetable life, although it even did not ſupply all the principles or elements neceſſary for the full growth and fertility of plants; inſomuch, that moſt of theſe fed only upon water, are either very weakly in their vegetation, or do not perfect their fruits and ſeeds. Although it has been long believed, that plants receive their nouriſhment through their leaves, which theſe abſorb from the air of the ſurrounding atmoſphere; ſo that they ſeem capable of growing by means of the water, light, heat, oxygen gas, and other elaſtic aeriform fluids, contained in the ordinary atmoſphere; yet, from the whole ſeries of agricultural facts and experiments, it is fully aſcertained, that by much the greater part of the nouriſhment of plants, in general, is extracted from the earth or ſoil in which they grow; and that this has great influence upon their condition, their vigour, the rapidity of their growth, and on the nature, taſte, and flavour of their fruits and other productions.

2. It has long been obſerved, that, in ſupplying plants with the principles neceſſary for their growth and perfection, the ſoil in time becomes exhauſted, and that it then becomes neceſſary to reſtore to it what has been loſt. Hence it has been concluded, that ſomething muſt have paſſed from the ſoil into the growing plants;

that this ſomething, neceſſary to vegetation, was gradually waſted or extracted from the ſoil; and that, to reſtore its vegetative powers, it was requiſite to replace this loſs. The addition or reſtoration of this nouriſhing vegetative ſubſtance to the ſoil, conſtitutes *manure*. Nature perpetually furniſhes the example of this inceſſant neceſſity, to replace the continual loſs experienced by the ſoil, in conſequence of the growth of thoſe vegetables by which it is penetrated and covered. Every year, that which has been abſorbed from the ſoil by the growth of plants, is reſtored again, by means of the remains of thoſe plants which die: theſe remains accumulate on the ſurface, rot, and become decompoſed, and form ſucceſſive layers of mould or vegetable earth, in which the germs of new plants are ſucceſsfully developed, and from which their young roots extract the elements of vegetative nouriſhment.

3. In conſequence of this natural ſucceſſion, thoſe parts of the earth that are covered by trees, and by plants of various kinds growing every where under their ſhade, become gradually covered, to greater or leſs depths, with a ſtratum of vegetable mould, owing to which theſe parts retain fertility for a long while. In this ſtratum of fertile mould, after cleaning away and cultivating the ſites of ancient foreſts, layers, ſlips, and ſeeds of various kinds acquire a rapid and luxuriant growth. Hence, in conſequence of the ſucceſſive depoſition of ages, the almoſt inexhauſtible fertility of the lands which have been reclaimed in various parts of the immenſe foreſts of America, where the cultivators begin by cutting down or burning the ancient vegetable inhabitants, to make way for the growth of ſeveral uſeful plants, which do not thrive in our more temperate or cold climates.

4. In imitation of the proceſs of nature, when ſoil has become exhauſted of its nouriſhing juices, or vegetative powers, by means of too long continued or too luxuriant vegetation, the agriculturiſt, by ſtirring up the ground with the plough or other implements, inſerts into, or mixes with it, the corrupted remains of vegetable or animal matters, which are termed *manures*. Theſe, for the moſt part, are compoſed of ſtraw which has ſerved as litter to animals; and which, being impregnated with their dung and urine, are thrown into heaps, that they may heat, ferment and rot, ſo as to become what is termed *muck*.* Leaves of trees, impregnated in the ſame manner, heaped up, heated, fermented, ſoftened, decompoſed, and rotted, are likewiſe employed for the ſame purpoſes. Bones of animals, horns, even wood cut into pieces, or bruiſed into powder, are often employed as manures in ſome

* I have choſen this word to imply rotten dung.—*R. r. r.*

ſome countries. In ſome, human ordure, long kept, is uſed as manure; ſometimes even preſerved till it has changed into a pulverulent, dry, inodorous ſubſtance.

5. With the ſame views, men of knowledge in conducting extenſive improvements of exhauſted or impoveriſhed land, placing upon them numbers of animals, chiefly ſheep,* effect the proceſs of manuring in a large way, and very ſuddenly. Theſe animals, finding ſufficient nouriſhment upon the ground, return much more to the ſoil than they take from it, by dropping their ſolid and fluid excrements, or by means of the greaſe of their fleeces, and their perſpirable matter when they lye upon the earth. This mode of manuring the ſoil, certainly requires a firſt outlay of conſiderable value; but it largely repays the expence in after produce. The whole plan of this procedure turns upon the reciprocal converſion of vegetable into animal ſubſtance, and the latter again into the former.

6. True ſcience has long been ignorant reſpecting the cauſe of action of theſe manures. In the old chemiſtry, this was attempted to be explained upon a theory of ſalts and ſtimulants, which modern diſcoveries have ſhown to be altogether abſurd and gratuitous. Thus, recent agricultural experiments have completely proved, that the introduction of real ſalt into the ſoil, inſtead of promoting vegetation, actually injures the growth of plants. Modern pneumato-chemical analyſis has ſupplied more exact ideas reſpecting the influence of manures upon vegetation, by ſhowing that the ſubſtance of plants is compoſed of hydrogen, carbon, oxygen, and ſometimes azot, and of ſulphur and phoſphorus, without taking into conſideration lime, ſilex, and potaſs. Hence, ſince theſe are the only elements in the compoſition of the ſubſtance of plants or vegetable matter, it evidently follows that theſe only are neceſſary for their growth.

7. This reaſoning is ſufficient to open our road to a knowledge of the mode of action, or theory of manures. In effect, all theſe primary elements are found in abundance, in thoſe compound ſubſtances already mentioned, from which muck or manure is prepared. Hydrogen is ſo very abundant in theſe, that it often eſcapes in form of gas, during their decompoſition. Carbon ſhows itſelf, by the black colour which rotten dunghills acquire, and in the darkneſs of the mould into which they are finally converted. What is called dunghill-water, is chiefly water holding

* This ſeems to hint at folding; but, at any rate, is much below the modern huſbandry, which improves by alternate crops of turnips and clover, eaten on the ground, producing large profits while improving.—*R. r. r.*

holding carbon in ſolution, as may be ſeen by its depoſition when long kept: It likewiſe contains ammoniac and other animal ſubſtances, which, however, are only to be conſidered as extraneous admixtures. Carbonic acid gas is conſtantly eſcaping from vegetable mould. Thus theſe compound maſſes contain every thing neceſſary for ſupplying nouriſhment to plants, and in ſuch abundance, as to make it perfectly eaſy to explain how vegetation ſhould be ſo luxuriant, and the growth of plants ſo rapid, in ſoils mixed with theſe manures.

8. From thence, likewiſe, and by comparing the influence of the ſoil, and that of the air, upon the quick growth, and vigorous vegetation of plants, we may judge that the ſoil contributes largely, in conſequence of the manure with which it is provided, and that the roots of plants abſorb greedily the alimentary materials from the manured ſoil, in a liquid form: While, on the other hand, very little nouriſhment is conveyed to plants through their leaves; which, in reality, are rather the tranſpiratory emunctories, or organs of excretion. It is likewiſe ſufficiently proved by obſervation, that water is almoſt the ſole common vehicle for conveying earths, carbonic acid, carbon and hydrogen, into the organs of plants; and, for this reaſon, water is ſo indiſpenſably neceſſary in the ſoil in which their roots are placed. In theſe proceſſes, water exerts two actions; it aſſiſts the ſlow and progreſſive decompoſition of the vegetable and animal ſubſtances compoſing the manures, diſſecting as it were their elements from each other; and it conveys theſe, when decompoſed, into the abſorbent veſſels of the plants.

9. Manures, or thoſe organic matters which form them, by the mixture of their particles, with the particles of earths ſtrictly ſo called, beſides furniſhing nouriſhment to the roots of plants, exert another action which is auxiliary, and not leſs uſeful to vegetation. Theſe manures undergo a conſtant fermentation, by which they are attenuated, divided and decompoſed; and, as this fermentation neceſſarily produces an increaſe of heat or temperature, it muſt greatly promote vegetation. Mould peculiarly rich in vegetative nouriſhment, ſuch as thoſe employed in the beds and frames of market gardeners, and botanical gardens, and which contain conſiderable quantities of horſe-dung and ſpent tan bark, become ſo warm, that the hand diſcovers a conſiderable heat in them above the external temperature. Hence, in theſe, many plants can be cultivated, which will not thrive in our ordinary ſoils, in which they would either languiſh or periſh altogether.

10. Agriculturiſts are perfectly aware, that, if they employ dung not rotted, or too little fermented, they would occaſion a

too

too haſty vegetation, dangerous in our climate, in which, delicate plants, too early forced up, would be readily nipped or killed by the cold. Hence the care which they exert, that their muck may not be too freſh or too ſtrong, leſt it occaſion a too violent heat in the earth or ſoil by its ſubſequent fermentation. Hence they have great reaſon in ſaying, that raw or unfermented dung is too hot for uſe. Manures ferment ſo powerfully, that alkaline, calcareous and ammoniacal acetites may be extracted from them by elixation; and we can even detect the preſence of acetous acid, in fermenting dung, by means of pouring on ſome ſtronger acid, which diſengages a ſtrong odour of vinegar.

11. Another effect of manures, diſcovered by Ingenhouſz, is the power they ſeem to exert upon the atmoſphere, from which they abſorb oxygen, and its conſequent tranſmiſſion into the abſorbent veſſels of the roots of plants. When vegetable mould, or ſoil mixed with manure, is expoſed to contact of air in a cloſe veſſel; the air, after ſome time, is found to have loſt part of its oxygen; and at length the oxygen is entirely abſorbed. This, even, is one of the beſt methods of procuring the azotic gas of the atmoſphere, in a ſtate of purity from oxygen gas. Although Humboldt believes that he has aſcertained this property, of abſorbing oxygen, in the pure earths, eſpecially alumine and magneſia; it is almoſt doubtleſs that it muſt be more powerful in ſuch as are mixed with vegetable matters; and that theſe, in manures, act upon the oxygen like combuſtible bodies, having a ſtrong tendency to become oxydated; and that from theſe oxydes, the roots of plants carry off the oxygen, after they have penetrated the abſorbent veſſels, in a ſtate of ſolution in water.

12. Oxygen, thus fixed and precipitated from atmoſpheric air by manures, certainly acts a part of more or leſs importance in vegetation; whether we conſider it as ſerving to convert the carbon of the manure into carbonic acid, ſo uſeful to the growth of plants, when conveyed to them diſſolved in water; or when, on the other hand, we take into conſideration the great effect produced upon vegetable nutrition, by means of dilute oxi-muriatic acid, mixed with the ſoil in which they grow. Pajot-Deſcharmes, who ſucceſsfully applies chemiſtry to the proceſſes of manufacture, obſerves, that exceſſively dilute oxi-muriatic acid, even much exhauſted by ſeveral ſucceſſive bleaching operations, very greatly accelerated the growth of plants in a garden which he had watered with that liquid. Comparing this fact, with the obſervations of Ingenhouſz and Humboldt, already mentioned, we diſcover clearly that the abſorption of oxygen is one of the moſt uſeful and moſt fertilizing effects of manure.

13. From theſe facts, ſo luminouſly explained by modern chemical knowledge, the effects produced by labouring and frequently ſtirring the earth, are readily underſtood. This operation of *fallow* is ſtrongly recommended by all experienced and judicious agriculturiſts. It is evident that, in ſtirring the land to a certain depth, not only is it rendered lighter, more mellow, more divided, and more penetrable; but, in this operation, numberleſs inſects and weeds, which infeſt and exhauſt the ſoil, are deſtroyed; manure, which has been buried, is brought back towards the ſurface, and is diſtributed uniformly through all parts of the ſoil, to nouriſh the roots of future crops, and is reſtored to places which had been exhauſted by preceding ones. By continually expoſing freſh ſurfaces of the ſoil to the air, theſe matters which have a tendency to become oxydated, are placed ſo as to acquire oxygen from the atmoſphere; by augmenting the abſorption of oxygen in the ſoil, its vegetative power is increaſed proportionally to the frequency in changing its expoſed ſurfaces; by this, the ſlow and imperceptible combuſtion, which forms the principal part of the influence of air, is multiplied.

14. Formerly, even near our own days, when, in the imperfection of phyſical knowledge, mankind were ſatisfied with ſuch hypothetical reaſonings as then conſtituted all theory, theſe effects produced on the ſoil by the influence of the air, were vaguely explained by the ſuppoſition of certain ſalts which they conceived to be depoſited in the ſoil during the proceſſes of fallowing. In thoſe days, ſcience had not acquired that exact and accurate knowledge, concerning the nature of air, and the compoſition of vegetable ſubſtances, which now throw ſo clear a light on the natural proceſſes of vegetation, and the influence of manures, and agricultural operations.

R r r.

(To be continued.)

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

SIR,

THE ſatisfactory account relative to the ſoiling of cattle, given in your laſt Number, (Vol. 6. p. 460.), muſt be highly gratifying to every perſon intereſted in the welfare of agriculture; ſeeing that the profits ariſing therefrom are, in the firſt inſtance, not only conſiderable, but ultimately increaſed by the large ſtore of manure thereby produced. As to the direct profits, theſe might have been more or leſs, according to the ſtate of markets at the time of buying and ſelling, without affecting the main queſtion; but the great point ſeems ſufficiently aſcertained by the reſult of the

the trial made, namely, that cattle will thrive equally well, or near equally well, when confined and fed upon clover, and other green herbage, as when depaſtured in the open field. This circumſtance, which ſets aſide all the ſpecious theory hitherto inimical to home-feeding, ſhews the danger of relying on theory, however plauſible, unſupported by experiment; and inclines me to believe that this mode of feeding, unleſs oppoſed by inveterate habit, will, ere long, ſpread extenſively, and turn out of great importance to the corn farmer, by reaſon of the increaſe of manure which it neceſſarily occaſions.

It is well known that the greateſt part of farm-yard manure, under the ordinary plan of management, is of very inferior quality; and that the ſoil derives inconſiderable benefit from the inſipid and lifeleſs ſtuff, ſo frequently applied to it under the name of dung. On theſe accounts, farmers are called upon, by every motive which ought to operate upon profeſſional people, to take ſuch ſteps as may tend to the improvement of manure; and none are better calculated to promote this deſirable end than the conſumption of green food in the court yard, where the manure is accumulated. To thoſe who poſſeſs turnip ſoils, the conſumption of that root anſwers the object effectually; but others, who poſſeſs ſoils of a different deſcription, can only gain the wiſhed for benefit by uſing clover and tares. By proportioning the quantity of herbage to the quantity of ſtraw that may be in hand, I am ſatisfied every particle of manure may be ſufficiently prepared; a circumſtance which will never be loſt ſight of by the good huſbandman.

I may alſo mention, that the quality of dung is much improved, by turning it when in a moiſt ſtate, and mixing it with a little earth. This mixture has great effect in decompoſing decayed ſubſtances, and in bringing about a thorough ſtate of corruption, without exciting that degree of fermentation which ſeldom fails to deprive dung of its moſt valuable qualities. A little earth is even uſeful to the beſt prepared dung; it not only adds to the quantity of the heap, but makes it ſpread more equally, and incorporate better with the ſoil, than pure dung,—preventing ſuch quantities from lying above ground, in a dormant and inactive ſtate, as is frequently obſerved on the ſeed-furrow of a ſummer fallow.

Where ſtraw is plentiful, might not ſheep be fed in folds, and regularly littered, in which way their *droppings* would be of far more importance than when ſcattered at large over the field? I ſubmit this queſtion to the conſideration of your correſpondents, and ſhould be glad to hear of an actual trial made to aſcertain its utility. Sheep love a dry bed, and are greatly hurt by dampneſs. In a properly conſtructed fold-yard they might conſtantly be kept dry. Whether they would fatten equally well, as in the common

mode,

mode, may be doubtful; but certainly an immense quantity of rich manure would be gathered, especially where there is a sufficient supply of litter.

Even when turnips are to be eaten in the field, I am convinced that a fold for storing their droppings will be of immense value; for, so far as I have observed, the ground is seldom enriched by a scattered distribution. All excrement whatever becomes more fertilizing from being preserved in a compact manner; and acquires qualities that originally does not belong to it. In short, no branch of rural economy has hitherto been more neglected, or calls for more improvement than that of manure, both in respect of quantity and quality. Every person admits dung to be the great desideratum in farming; yet few, very few, pay that attention to the collection and preparation of this important article, which it undoubtedly deserves. In every Number of your work, I would recommend a stimulant to be administered to such people as neglect this first duty of the husbandman. The infallible Director of all things found that man required, once in seven days, to be reminded of the chief object for which existence was bestowed upon him; and surely it cannot be improper, were you, four times in the year, to call his attention to the first object of the art which he professes. No publication is so well calculated for diffusing such injunctions as the Farmer's Magazine. It is conducted on popular and practical principles; and has acquired a range of circulation seldom obtained by a periodical work devoted exclusively to one science.

I omitted to mention that lime, marl, and shell-sand may be got in most districts; and that great benefit has been derived from them, almost in every instance, upon first application; but in a course of cropping, when the soil requires to be recruited, these articles by themselves produce but little effect; though, when combined with other substances, they operate to advantage very visibly. With half my usual quantity of dung, and a competent dose of lime, I have found as weighty a crop from one part of a field, as was got from the remainder, where a double quantity of dung had been applied. Perhaps speculators will allege that this effect arose from a forcing quality, without any tendency to enrich the soil, and only served to make the dung exhaust itself in half the time it would otherwise have done. But I would in that case reply, that it is gainful to be put in possession of the same produce in the course of three years, which otherwise might not have been obtained in less than double the time: besides, in the subsequent rotation, no difference betwixt the parts half-dunged and limed, and those whole-dunged, was discernible; which proves sufficiently that the forcing quality of the lime had not injured the soil. With respect to *causes*, I never puzzle myself about

about them, for *effect* is every thing with me. If weighty crops can be procured, the means of producing manure is furnished; while a thousand ideas respecting the cause, may be entertained, without producing a single cart-load. I am, &c.

Mid-Lothian, 5th Dec. 1805. T. S. S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Management of Roads in East Lothian.

SIR,

In a former letter, (Vol. 6. p. 349.) I offered a few cursory observations concerning the great post road leading through East Lothian, and promised, on an after occasion, to notice some matters intimately connected with the good management of that road, particularly the contracts by which it is supported; the depth of metals applied; and the duties incumbent on the public surveyor. On these subjects my sentiments shall be stated concisely, though with freedom; and I shall not for a moment lose sight of the merited respect due to the honourable Gentlemen who constitute the administrative body of that district.

In the *first* place, though it is customary, in this and other counties, to have roads supported upon contract, it may be doubted whether that mode proves ultimately the cheapest and most effectual one, especially where contracts endure for five or seven years, without defining, in a precise manner, the nature and extent of the work which is to be annually executed. Contracts were formerly altogether deficient in these respects, till dear bought experience convinced the trustees of the necessity of being more particular in their agreements. The contractors were bound to do little more than to keep the road surface-smooth, and to leave it in good condition; and it generally happened, that extraordinary repairs were necessary at the conclusion of every contract, before new contractors could be procured. In short, it was seen that a road might, in some respects, be kept surface-smooth, whilst it was wearing down to the ribs, and going rapidly to destruction. Whether the condition of the roads was regularly examined at the end of each contract, is not meant to be investigated. In some cases it was, but in others perhaps it was not. At any rate, it is believed the trustees acted with singular leniency in these matters, though no blame is attached to them on that score, the work being usually performed on the lowest terms.

Of late, a very important change has taken place in contracts, namely, obliging the contractor to cover annually a certain portion of the road entrusted to his care, and specifying the depth and breadth of materials which are to be applied, thereby correcting

recting a material defect in the former ſyſtem. The contractor is alſo taken bound to keep the whole of his diſtrict ſurface-ſmooth, which, after all, is a vague term. Theſe alterations promiſe to be of much advantage, though ſtill the road ſyſtem cannot be viewed as placed on any thing like a perfect footing. It is obvious that a conſiderable part of the road, perhaps one third or one fourth, may be waſting or decaying very faſt, though it muſt wait for a thorough covering till the period arrives when the contractor is bound to do the needful. In the mean time, he is only bound to keep it ſurface-ſmooth, or, more properly ſpeaking, to fling a few looſe ſtones into the ruts and hollows; which operation is of ſmall benefit to the road, but a great annoyance to the traveller.

To correct theſe defects, and to arrange the road ſyſtem upon better principles, are, in my humble opinion, objects of primary importance. Without entering into the nature of the contracts now in force, or ſaying one word upon their merits, it may be remarked that no contract whatever can be entered into for ſeven years, which can poſſibly embrace every object which may occur within that period. In ſome ſeaſons, the roads are doubly damaged more than in others; hence, if the like repairs are to be annually beſtowed, and exiſting circumſtances overlooked, a very great inequality muſt neceſſarily take place in their ſtate and condition at different periods. On theſe accounts, I am inclined to believe, that the beſt contracts are thoſe which are annual ones; nay, further, that contracts ſhould extend only to certain pieces of work, the nature and value of which can at the moment be aſcertained and eſtimated, and not to the upholding of a certain line of road, becauſe the charge or repair thereof, for the reaſons already urged, can at no time be ſpecifically aſcertained; the conſequences of which are,—either the contractor receives too much of the public money, or the roads remain in an imperfect ſtate. It is unneceſſary to expect ſuch people will lay out more than they receive; indeed, few of them are capable of ſerving the public for nothing; therefore the public can never be benefited by them, though it is evident that they may often be benefited by the public.

If roads were to be repaired in this way, it ſeems not unreaſonable to ſuppoſe that every yard of them might conſtantly be preſerved in good condition. That the funds are now ſufficient for every purpoſe, when tolls are raiſed 50l. *per cent*, is not to be queſtioned; but that the object will be gained under the contract ſyſtem, even when tolls are augmented, is not altogether ſo ſure. My opinion is, that an uniform good road cannot, in the nature of things, be gained in that way, even were tolls ſtill higher raiſed, becauſe one part may be getting very bad, whilſt another is

getting

getting equally good, and becauſe a ſeven years bargain admits the contractor to advantages which cannot be reaped in ſeven annual ones. An annual ſpecific bargain, made according to circumſtances, can rarely be much overrated; and the terms being freſh on the memories of the parties, would be more regularly implemented. At all events, roads in the one way might conſtantly be kept in good condition, which undoubtedly is not the caſe with them at preſent. Here I beg it may not be overlooked that it is the road ſyſtem itſelf which I blame, not the perſons by whom the ſyſtem is adminiſtered.

Under the ſuppoſition that the contract ſyſtem may be departed from, it cannot be improper to detail the plan which appears beſt calculated to procure good roads. It is in ſome meaſure borrowed from the pariſh ſyſtem which, in every caſe, when fully acted upon, has not failed to anſwer the intended object.

The general management of the poſt road to remain with the whole body of truſtees as at preſent, but five committees to be appointed, conſiſting of ſeven members each, or a greater or leſſer number, according to circumſtances; which committees, reſpectively, ſhall, at a ſtated annual meeting of the truſtees, to be held on the laſt Monday of December, or any other time that may be thought more convenient, preſent a report of the condition of the road within their limits, and ſuggeſt what repairs may be neceſſary thereupon during the enſuing year, and the probable expence of executing the ſame; which reports being duly conſidered by the truſtees, ſuch ſums ſhall be allocated to the committees as may be deemed expedient or requiſite. The committees afterwards ſhall give public notice concerning the particular places of the road that are to be repaired, ſpecifying the breadth and deepneſs of the materials; receive offers for executing the ſame from jobbers and others, at a fixed price per rood; examine the work before it is taken off the hand of the perſon who contracts for it; and report to the next meeting of truſtees, a ſtate of their proceedings.

The above is only a rough outline, though it is humbly hoped that what is ſtated may ſhew the nature and deſign of the whole. I propoſe to break the road down into five diviſions, merely to ſave trouble to the truſtees; and the members of the committees would no doubt be ſuch as were locally ſituated near that part of the road for which they were appointed, therefore intimately acquainted with every bad ſtep thereof. It would be the ſame thing to the principle of my plan, were the whole truſtees to act in its execution, though probably not ſo beneficial to the public. What I have in view, is neither more nor leſs than that repairs may conſtantly be made where neceſſary, and that ſuch be made in the moſt prudent and economical manner.

In the *second* place, under the ſyſtem now acted upon, it appears to me that materials are laid on too thick, which not only throws the road entirely out of ſhape, but alſo cauſes much additional inconvenience to every carriage paſſing thereupon, till firmly bedded and conſolidated. Theſe circumſtances were hinted at in my former letter; and I obſerve, with pleaſure, that they are corroborated in your laſt Number (vol. 6. p. 501.) by the remarks of a traveller who ſeems to entertain juſt notions of the ſubject. Though it is exceedingly proper, when firſt repairing or making a road, to give it a thick coating of ſtones, it does not follow that it is equally proper, when repairing the ſame road at an after period, that a covering of equal deepneſs ſhould be repeated. I am clear that materials, in ordinary caſes, ſhould not be applied, exceeding four or five inches in thickneſs at one time, and ſatisfied that making repairs on this principle will ultimately be found moſt beneficial to the roads, and moſt comfortable to the public. The thicker that materials are applied, ſo much longer time does it take to have them bedded and conſolidated, whilſt the ruts will be ſo much deeper, and the dimples more numerous. Beſides, the loſs ſuſtained by the public in the interim, from the increaſed draught thereby occaſioned, is no mean conſideration. I have ſeen the ſtrongeſt horſes unable to get on when an eight inch covering has been given; to avoid which, as formerly ſtated, the ſides are reſorted to till they are broke down and unpaſſable; the ridge in the middle is then gradually occupied, which, by this means, is effectually thrown out of ſhape, and an uncomfortable road ſpeedily follows. I might enlarge upon theſe matters; but, believing that moſt people entertain ſentiments ſomething ſimilar, I ſhall not take up your time in an unneceſſary way.

In the *third* place, the utility of having a public ſurveyor, who will minutely examine the roads, and ſee the repairs faithfully executed, is abundantly evident to every capacity. It can hardly be expected that the honourable gentlemen, who act as truſtees, are to be obſervant of ſuch things; nor would it be reaſonable to ſuppoſe that, in every caſe, they were fully qualified to judge upon the work executed, even were they to devote a greater portion of attention to the buſineſs than cuſtomarily happens. Hence the propriety of appointing a public officer to ſuperintend the roads, whoſe ſole duty is to make reports concerning their condition, and to ſee that contracts or agreements for repairing them, are duly and faithfully implemented. Under the belief that the gentleman who preſently fills the office is well qualified for diſcharging that important truſt, I ſhall offer a few hints which probably may not be thought unworthy of ſome attention from him and his employers.

To

To render a ſurveyor uſeful, he ought to be clothed with full authority over all thoſe who act below him; for, without full authority, his beſt endeavours may be altogether nugatory. In fact, he ſhould be veſted with a kind of *interim* power to do what is neceſſary, without delay, though ſpecially inſtructed to report immediately to the truſtees, on all ſuch occaſions, concerning the nature and extent of theſe extraordinary inſtances of his adminiſtration. I go upon the idea that the ſurveyor is fully qualified for exerciſing ſuch powers. If he were not qualified, then it is plain he is unfit for filling ſuch an office; though I by no means think ſo of the preſent ſurveyor.

Another thing which occurs is, that every bargain, agreement, or contract, made for repairing the roads, ſhould, in the firſt inſtance, originate with the ſurveyor, whoſe opinion, in theſe matters, ought, in a great meaſure, to be acted upon by the truſtees, when ratifying or concluding ſuch tranſactions. I believe the preſent ſurveyor's opinion has generally been ſought after when agreements of this kind were on the carpet; but I cannot take upon me to ſay that in many caſes it has been adopted, though it would appear that a perſon whoſe ſole attention is devoted to road matters, may be viewed as better qualified for making ſuch arrangements than thoſe who only caſually or incidentally interfere with any branch of the executive department.

Again, as to the ordinary duties of a ſurveyor, they need not be enumerated; though perhaps it would not be amiſs, were ſome checks enacted for enſuring a faithful diſcharge of theſe duties. On this point it may be remarked, that, a regular examination of the roads, and ſuperintendance of the work carried on, being things manifeſtly uſeful; were books left at every toll-bar, wherein the ſurveyor, each time he paſſed, ſhould make an entry, or, in other words, ſtate what he had done during that day's ſurvey, very important benefits might follow. A check of this kind would neceſſarily keep a ſurveyor upon the alert, and furniſh evidence againſt him, were he to neglect a regular and conſtant ſuperintendance. I am here aware that a ſurveyor, like as has been alleged of exciſemen, might impoſe on the truſtees, and enter more ſurveys than actually performed; but were it expreſsly declared that an immediate forfeiture of office followed any fraud of this kind, it may almoſt be truſted that none would expoſe himſelf to ſuch a puniſhment.

Perhaps it would be uſeful, at leaſt it would promote regularity, (and that is of advantage in every kind of buſineſs), were all road work, whether performed by contract or otherwiſe, paid by orders of the ſurveyor on the treaſurer of the county. This may be the rule, for all that I know at preſent, though I am inclined to ſuſpect the contrary; it being conſiſtent with my perſonal

knowledge, that money, in ſeveral inſtances, has been iſſued on the order of individual truſtees, which, without ſaying more, neceſſarily leads to confuſion and diſorder. Beſides, were no money iſſued unleſs upon an order in writing from the ſurveyor, it would, in ſome meaſure, make him reſponſible for the work performed. In every caſe wherein he was diſſatisfied with any branch of work, an immediate report ſhould be made to the truſtees, and directions from them ſhould govern the ſurveyor in making a ſettlement with the people employed.

Having thus fulfilled the promiſe given in my laſt, and noticed ſome matters connected with the management of the poſt-road leading through Eaſt Lothian, allow me to add, that I hope the truſtees, to whoſe care it is by law committed, will view what I have ſaid as proceeding from a good motive, and as meant to promote the proſperity of that road and the accommodation of travellers. That every public road ſhould be properly conſtructed and ſufficiently repaired, is a propoſition which few will diſpute; therefore, the one to which theſe remarks relate, being, to a certain extent, the great thoroughfare betwixt our Scotiſh metropolis and all the diſtricts ſouthwards, deſerves the utmoſt care and attention, ſo as it may at all times be preſerved in the moſt perfect condition. I am, Sir, yours, &c.

AN EAST LOTHIAN MAN.

P. S. You will excuſe me for adding, that that part of the road eaſtward of Haddington, which was mentioned in my former letter as highly dangerous to every traveller, is now in the courſe of being made up on the ſides in the way there pointed out. This, no doubt, under the circumſtances of the caſe, is a neceſſary meaſure, though moſt certainly attended with an expence which might have been ſaved had the road been repaired on the principles deſcribed in this and my former letters.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Uſe of the Syphon.

SIR,

IT has frequently occurred to me, that the power of the *ſyphon* might be applied, as a mode of conducting fluid, upon a ſcale more extenſive than that to which it is generally limited in practice, being nothing greater than merely for the purpoſe of decanting liquors from one caſk into another.

It is well known that in the *ſyphon*, when exhauſted of air, the preſſure of the atmoſphere upon the ſurface of the water in the well, will cauſe the water to aſcend as high as it does in the common piſton pump, upon the exhauſtion made by the ſtroke of the piſton, ſay, for ſecurity, to the height of 27 feet. And

And that the overbalance of the weight of the longer column of water in the longer and diſcharging leg of the ſyphon, will cauſe the water to flow from this leg, till ſuch time as the ſurface of the water of the well, in which the ſhorter and receiving leg of the ſyphon is immerſed, ſhall have ſunk to the level of the diſcharging mouth of its longer diſcharging leg.

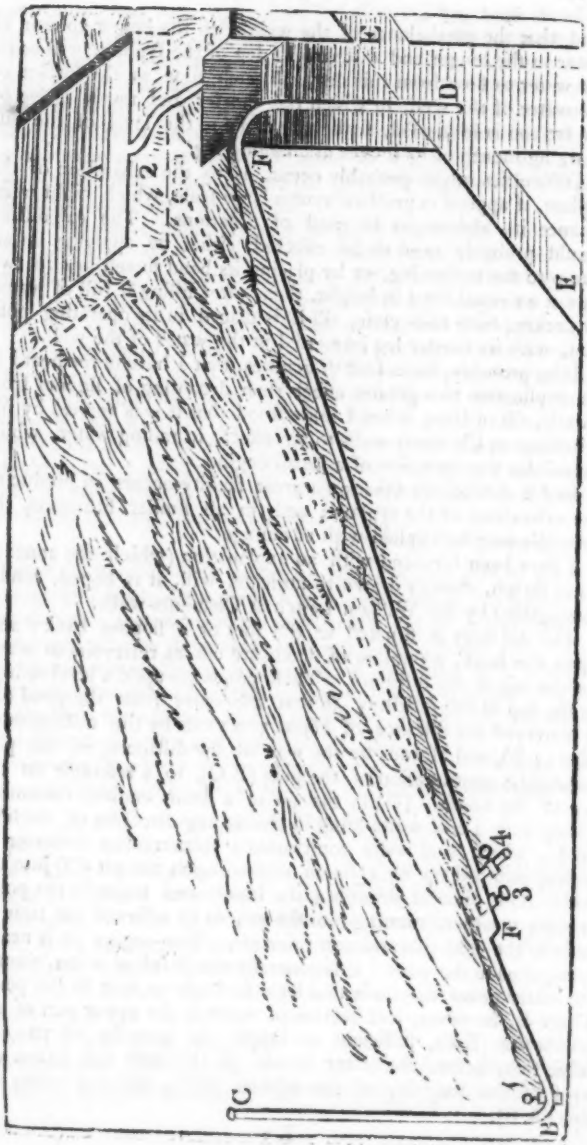
Difficulties might probably occur, as to the exhauſtion of the ſyphon, if applied in practice upon a large ſcale, which might overbalance its advantages in moſt of ſituations. The exhauſtion would probably need to be effected, either by applying an air pump to the longer leg, or by placing its bend loweſt and its two legs at an equal level in height, then, after filling it full of water, by corking both ends cloſe, till it is placed in its operating poſition, with its ſhorter leg immerſed in the water of the well.

It is, probably, from ſuch difficulties, that I have never heard of its application to a greater effect than decanting of liquors from barrels, till of late; when I underſtood that it was applied by Mr Aitchiſon at Clements-wells to an effect, in raiſing water, which ſuperſedes the operation of a ſteam engine.

In Mr Aitchiſon's ſituation a great facility occurs in producing the exhauſtion of the ſyphon; and, in all ſimilar ſituations, the principle may be applied with advantage.

I have been favoured with an explanation (which the annexed hand-ſketch, though drawn to no ſcale, will, it is hoped, render intelligible) by Mr William Leitch at Clements-wells.

The diſtillery is ſituated at the foot of a ſloping bank; and, upon this bank, a number of ponds are cut as reſervoirs of water for the uſe of the diſtillery. Theſe ponds are upon a level as high as the top of the diſtillery, ſo that the water from the pond (A) is conveyed the diſtance of about 300 yards by the underground pipe (2 B), and aſcends up the wall of the diſtillery, in the perpendicular continuation of the pipe (B C), to a reſervoir on the top of the houſe. (D) Is the pit of a ſteam engine, communicating with a coal waſte lying in the ſloping direction of the lines (E E), which coal waſte conſtituted a ſubterranean reſervoir of water, pumped up by a ſteam engine upon the pit (D) into the pond (A) in time of drought; the ſuperfluous water in the pond, in rainy weather, running into the pit, to be reſerved for time of need in the ſaid ſubterranean reſervoir. The engine pit is nearly contiguous to the pond; it is generally nearly full of water, though the water never riſes in it to a level ſo high as that in the pond. There is, however, a collection of water in the upper part of the coal-waſte (E E), ſufficient to ſupply the quantity of 784,080 cubic feet, before the water in the pit (D) ſhall ſink below the level of the long leg of the ſyphon (F F), where it enters the pipe (A B).


A
1
2
3
D
E
F
4
3
2
1
C
B

This brings us to the deſcription of the ſyphon, repreſented by the lines (F F D). It is an underground pipe communicating with the pipe (A B) above the turncock (1), and bends over the edge of the ſteam engine pit (D); its level, where it bends, being ſomewhat lower than the level of the water in the pond (A). The lower mouth of the ſyphon pipe, where it iſſues in the pipe (A B), is ſo much lower than the ſurface of the water in the pit (D), as it uſually ſtands, that 784,080 cubic feet of water muſt be drawn from the pit, before the water in it will ſink to the ſame level,—that is, ſuppoſing, when it is begun to be drained, there was no continued ſupply of water communicated to the coal-waſte from its own ſprings.

The ſyphon is ſet a-working by a moſt ſimple contrivance, for which it is indebted to its peculiar ſituation above deſcribed. Let the ſtop-cock (1) of the pipe (A B) be ſhut; let the ſtop-cock (2) of ſaid pipe, and the ſtop-cock (3) of the ſyphon pipe be opened: The effect will be, that the water of pond (A) will run down the pipe (A B), and up the ſyphon pipe (F F), the higheſt elevation of which, at its curve, is lower than the level of the water in pond (A), and into the engine pit (D). A vacuum being thus formed in the ſyphon, or rather an expulſion of all the air in it being effected; ſhut the ſtop-cock (2) and that of the ſyphon (3), and open the ſtop-cock (4) of the ſide-pipe diſcharging from the ſyphon.

The ſyphon at Clements-wells diſtillery is formed to draw water to the height of 22 feet from the well. It is evident, however, that the diſcharge from the ſyphon muſt neceſſarily be into a reſervoir upon a low level, from whence it muſt be raiſed by pumps to the reſervoir at top of the diſtillery.

I have thus explained the *principle* of the application of the ſyphon at Clements-wells, though, from want of ocular inſpection, perhaps ſome particulars of the deſcription may not perfectly apply. I remain yours, &c.

Manſe of Newlands, 16th Dec. 1805. CHAS. FINDLATER.

[The premium offered by the Publiſhers of this Magazine for the beſt Eſſay on the Culture of Wheat, is adjudged to the author of the following paper.]

FOR THE FARMER'S MAGAZINE.

Eſſay on the Culture of Wheat.

——hinc laudem fortes ſperate coloni. VIRG.

WERE the preſent ſtate of huſbandry in North Britain contraſted with what it was twenty years ago, every perſon of

common obſervation would be ſatisfied that a great and important change has taken place within that period; and that, whilſt the value of land, or rather the annual rental thereof has increaſed to a rate which our forefathers never dreamt of, the comfort and intereſt of the huſbandman have not been thereby leſſened; nay, rather, that his proſperity has been augmented almoſt in the like ratio with that which has occurred in the improvement of the country. Land has been conſidered by many people as the original fund, or capital ſtock of every ſtate; therefore, if this ſtock increaſes in value, it is a happy circumſtance when accompanied with a ſimilar improvement in the ſtate or condition of thoſe to whoſe adminiſtration or management it is committed.

It is, however, foreign to the deſign of this paper to take into conſideration the different features of modern improvement, or the ſeveral ſteps which have been adopted for accompliſhing or bringing about ſuch a happy change in our ſyſtem. Our object is reſtricted to a ſhort diſſertation on one branch of agriculture, wherein much improvement has occurred, namely, the management and culture of wheat lands; and ſurely the moſt ſuperficial obſerver will acknowledge, that, in few reſpects, has Scotiſh huſbandry been more ſucceſsfully meliorated.

Wheat is now cultivated upon a far larger ſcale than formerly; the practice of modern times admitting this increaſed cultivation, without deteriorating the ſoil. The ground is prepared in a much more perfect manner. The radical proceſs of ſummer fallow is extenſively executed, and drilled leguminous crops are generally introduced, which not only ſerve to keep the land clean and in good condition, but alſo vaſtly augment the ſtock of manure,—an object of primary conſideration with every good huſbandman. But, without inſiſting on theſe points, the queſtion propoſed by the Publiſhers of the Farmer's Magazine, namely, concerning the culture of wheat, ſhall be conciſely inveſtigated. For the ſake of preciſion, the ſubject ſhall be conſidered under different heads, and nothing ſtated but what has been realized and ſanctioned by extenſive practice.

Wheat, ſince the earlieſt period to which hiſtory reaches, has always been accounted the moſt valuable grain of the culmiferous tribe; hence all improvements which reſpect its culture, are of greater importance to the huſbandman than thoſe which relate to other grains. The fertility of this grain is even greater than that of any other. Pliny mentions ſome inſtances of fertility which are too remarkable to be omitted. 'Nothing,' ſays that celebrated writer, 'is more fruitful than wheat (which is the chief ſupport of mankind), for, from a buſhel, one hundred and fifty have been produced; and the procurator ſent to Auguſtus one grain

grain which had about four hundred ſtems, and another was ſent to Nero which had three hundred and fifty.' Though we have not, in our day, ſuch inſtances of productiveneſs, yet, it would appear, that the taſte or appetite of mankind for wheat bread continues to be ſimilar with what it was in Pliny's days; and, aſſuredly, no other article of food can be viewed as a proper ſubſtitute. That ingenious writer Dr Derham thus remarks, 'among the many contrivances for food, I cannot but attribute that univerſal aliment, bread, to the revelation, or at leaſt the inſpiration of the Creator and Conſervator of mankind; not only becauſe it is a food uſed in all or moſt part of the world, but, eſpecially, becauſe it is of incomparable uſe in the great work of digeſtion, greatly aſſiſting the ferment, or whatever cauſes the digeſtion of the ſtomach.' Though the Doctor, in this quotation, ſpeaks of bread in general, yet, as the inclination of the inhabitants of Britain for wheaten bread is ſo great, that few will eat any other who can procure it; every part of his obſervations are ſtrictly applicable to the ſubject of this eſſay. But, without ſaying more on this point, it may be noticed, that the predilection of the inhabitants of the Britiſh iſles for wheaten bread, inſures to the cultivator a ſteady and regular demand for whatever quantity of wheat it may be in his power to raiſe; nor is there any danger of the market being glutted with this article, ſeeing that the phyſical circumſtances under which the country is placed, preclude a ſuperabundant produce from being raiſed; at leaſt, it is almoſt certain, that the quantity required to ſupply the conſumption of the country, has not been raiſed within its limits for twenty years paſt, and that, in every year, a greater or leſſer neceſſity occurs for importations from other countries, ſo as the deficiency of home produce may be made up. Hence, even in a political point of view, it becomes a meaſure of wiſdom and expediency to increaſe the growth of wheat at home by every proper encouragement, ſo as a dependance on foreign countries may, as much as poſſible, be avoided. As luxury increaſes, ſo will the conſumption of wheaten bread; and had not numerous improvements been introduced into Britiſh huſbandry, it is more than probable, that at leaſt a fourth part of our bread corn would have been ſought for on the ſhores of the Baltic and America, at an expence exceeding what is called the balance of trade, which, of courſe, at the long run, would have ruined the country and beggared its inhabitants.

1. *On the Soils beſt adapted to the Growth of Wheat.* Rich clays and heavy loams are naturally well calculated for producing wheat, but any kind of clay and loamy ſoil, if ſituated in a proper climate, may be artificially adapted to the growth

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of that grain, by enriching it with a ſufficient quantity of manure. On ſoils of the firſt deſcription, wheat may be cultivated almoſt every ſecond year, provided due care is taken to keep the land clean, or in a huſbandman-like condition. A ſummer fallow once in four, ſix, or eight years, according to ſeaſons and circumſtances, is, however, neceſſary; and manure ſhould either be applied on that fallow for the firſt crop of wheat, or, what ſome people think preferable, ſhould be laid on the wheat ſtubble for a crop of drilled beans, which inſures the ſucceeding crop of wheat. If the firſt crop of beans has been completely cleaned, there is no difficulty of repeating and even of extending the courſe; and the crops will be little inferior to thoſe gained at the beginning of the rotation, provided manure has been beſtowed to each crop of beans. In this way, when the ground is fallowed every fourth year, two crops of wheat and one of beans are gained from manuring once; when fallowed every ſixth year, three crops of wheat and two of beans are gained from manuring twice; and, when fallowed every eighth year, four crops of wheat and three of beans from manuring thrice. In the firſt mentioned ſhift, leſs manure is beſtowed than in any of the other two; and if the ſoil is of good quality it will ſupport itſelf; whereas in the ſhifts of ſix and eight, unleſs foreign manure is procured, it rarely happens that they can go on ſucceſsfully for any length of time, without abſtracting dung from other parts of the farm on which they are practiſed.

With regard to thin clays, the ſhifts mentioned above are inapplicable. A ſix-courſe ſhift of a different kind has, however, been ſucceſsfully followed by many people; but it requires every branch of the work to be well executed. 1. A ſummer fallow dunged at the rate of 12 or 14 double loads per acre; 2. Wheat; 3. Graſs; 4. Oats; 5. Peas and Beans drilled; 6. Wheat. If manure can be given in the middle of the ſhift, every one of the crops may be expected good; but, if that is withheld, there will neceſſarily be a proportionable falling off in the two laſt crops. Huſbandmen muſt, however, adopt the good old clerical rule, and preach according to their ſtipends; though it deſerves to be remarked, that, if greater attention was paid to the collecting of materials, which ultimately are converted into manure, many deficiencies in the article would be fully ſupplied.

Light ſoils, though they will, with the exception of ſoft ſands, produce wheat of excellent quality, are not conſtitutionally diſpoſed to the growth of that grain; nor will they, under any management, bear ſuch a frequent repetition of it as thoſe already mentioned. Summer fallow on them may ſafely be diſpenſed with; becauſe a crop of turnips, which admits every branch of

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the cleaning proceſs to be more perfectly executed than even a naked or bare fallow does, may be profitably ſubſtituted. Wheat here comes in with propriety after turnips, though, in general caſes, it muſt be ſown in the ſpring months, unleſs the turnips are ſtored; in which caſe, it may be ſown in November; or it may be ſown after clover, for the fourth crop of the rotation; or in the ſixth year as a way-going crop, after drilled peas and beans, if the rotation is extended to that length. But, take it any way, it is ſcarcely poſſible to raiſe wheat ſo extenſively upon light ſoils, even where they are of the richeſt quality, as is practicable upon clays; nor will a crop of equal bulk upon the one, return ſo much produce in grain as may be got from the other. To enlarge upon this point would only ſerve to prove what few huſbandmen will diſpute, though, it may be added, that, on real ſands, wheat ought not to be ventured, unleſs they are either completely clayed or marled, as it is only with the help of theſe auxiliaries that ſuch a ſoil can gain ſtamina capable of producing wheat with any degree of ſucceſs.

2. *On the Culture required for Wheat.* On ſoils really calculated for wheat, though in different degrees, ſummer fallow is the firſt and leading ſtep to gain a good crop or crops of that grain. The firſt furrow ſhould be given before winter, or ſo early as other operations upon the farm will admit; and every attention ſhould be uſed to go as deep as poſſible, for it rarely happens that any of the ſucceeding furrows exceed the firſt one in that reſpect. The number of after-ploughings muſt be regulated by the condition of the ground and ſtate of the weather; but, in general, it may be obſerved, that ploughing in length and acroſs, alternately, is the way by which the ground will be moſt completely cut, and the intention of fallowing accompliſhed. It has been argued, that harrowing clay ſoils, when ſummer-fallowed, is prejudicial to the wheat crop; but, without diſcuſſing this point, (ſuch a diſcuſſion being unneceſſary), it may merely be ſtated, that, in a dry ſeaſon, it is almoſt impracticable to reduce real clays, or to work them too ſmall; and that, even in a wet one, ſuppoſing they are made ſurface ſmooth, they will, when ploughed up again, conſolidate into clods or big lumps, after forty-eight hours drought, and become nearly as obdurate as ever. It is only on thin ſoils, which have a mixture of peat earth, and are incumbent on a bottom impervious to water, that damage is at any time ſuſtained from over harrowing. Such are generally of a weak texture, and may be broke down with facility by the roller and harrow. If caught by much rain before the pores are in ſome meaſure cloſed, the moiſture is greedily abſorbed; and being prevented from going downwards,

downwards, by the hardneſs of the ſubſoil, the whole ſurface becomes a kind of mortar or paſte, unleſs previouſly well ridged up, which, to a certain extent, prevents the conſequences from being dangerous. Theſe evils, however, muſt be ſubmitted to by the poſſeſſors of ſuch ſoils, if they want to have them ſufficiently fallowed and prepared in a huſbandman-like manner; for, without reducing them, couch graſs, and eſpecially *moor fog*, with which they are commonly ſtored, cannot be eradicated. If they are reduced in the early part of the ſeaſon, the danger is ſmall; but to break them down in the latter part ought always to be avoided, unleſs called for by imperious neceſſity.

Some people think it improper to dung rich clays or loams when fallowed, and chooſe rather to reſerve that reſtorative till the ſucceeding ſeaſon, when they are prepared for a crop of drilled beans. Delaying the manuring proceſs for a year is attended with many advantages; becauſe good land, fully wrought, contains ſuch a principle of action within itſelf, as often cauſes the firſt wheat crop to be lodged before it is filled; under which circumſtance, the produce is diminiſhed both as to quantity and quality. This delay of manuring is, however, attended with diſadvantages; becauſe, when dung is kept back till the end of autumn or beginning of winter, to be laid on the ſtubbles, the weather is often ſo wet that it cannot be carted out without ſubjecting the land to injury from poaching, whilſt the labour in laying it on is alſo increaſed. On thin clays, or even upon ſoils of the other deſcription not in high condition, there can be no doubt but that the end of ſummer, and upon ſummer fallow, is the moſt proper time for manuring them, though it will be found that an improvident expenditure of dung, on ſuch occaſions, ought always to be ſteadily avoided.

When wheat is ſown after beans, it rarely happens, in this northern climate, that more than one ploughing can ſucceſsfully be beſtowed. Before this is given, it is advantageous to croſs-harrow the land, which levels the drills, and permits the ploughing proceſs to be executed with preciſion. Almoſt, in every caſe, the ridges ſhould be gathered up, ſo as the furrows may be well cleared out, and the plants preſerved from injury during the inclement winter ſeaſon. Clover land ſhould be neatly ploughed and well laid over, ſo as the roots of the graſſes may be buried and deſtroyed; for it frequently happens, that crops of wheat, after clover and rye-graſs, are greatly injured by inattention to the ploughing proceſs. In ſhort, ſowing wheat after clover may be conſidered as the moſt hazardous way in which that grain can be cultivated.

3. *On the Varieties of Seed.* Wheat may be claſſed under two principal diviſions, though each of theſe admits of ſeveral ſubdiviſions. The firſt is compoſed of all the varieties of red wheat; but as ſuch are now rarely ſown in North Britain, being at leaſt 15l. per cent. inferior in value to thoſe which are generally cultivated, it is unneceſſary to ſay any thing about them. The ſecond diviſion comprehends the whole varieties of white wheat, which may again be arranged under two diſtinct heads, namely, *thick chaffed* and *thin chaffed*. The thick chaffed varieties were formerly in greateſt repute, as they generally yield the whiteſt and fineſt flour, and, in dry ſeaſons, are not inferior in produce to the other; but ſince 1799, when the diſeaſe called mildew raged ſo extenſively, and to which they are conſtitutionally prediſpoſed, they have gradually been going out of faſhion, at leaſt in North Britain; and for two years paſt, a field of thick chaffed wheat has been a *rara avis* in any of the wheat diſtricts. Under theſe circumſtances, it ſeems unneceſſary to notice them more particularly.

The thin chaffed wheats are a hardy claſs, and ſeldom mildewed, unleſs the weather is particularly inimical during the ſtages of bloſſoming, filling, and ripening, though ſome of them are rather better qualified to reſiſt that deſtructive diſorder than others. In 1799, few thin chaffed wheats were ſeriouſly injured; and inſtances were not wanting to ſhew, that an acre of them, as to value, exceeded an acre of thick chaffed wheat, quantity and quality conſidered, not leſs than 50l. per cent. Since that time, therefore, their culture has rapidly increaſed; and to this circumſtance may, in a great meaſure, be attributed the high character which Scotch wheat now bears in London market. A nomenclature of thin chaffed wheats might be uſeful; but, at preſent, any thing of that nature is an impoſſible taſk; becauſe, even with agriculturiſts, their names are altogether arbitrary. It is ſufficient to ſay, that the beſt variety now known, is one ſelected and reared by Mr William Hunter, farmer at Knows, in Eaſt Lothian, which, for ſoundneſs of conſtitution, and prolificneſs of produce, exceeds any other with which the writer is acquainted. Perhaps the prettieſt ſample is not hence afforded; but millers and bakers are now ſatisfied, that the whiteſt and faireſt wheats externally are not thoſe which are moſt productive of the perfect article. It has been often noticed, that this wheat preſerves a green healthy aſpect during the coldeſt weather, when other varieties aſſume a ſickly and jaundiced hue. The reſiſtance which it ſhews to the effects of inclement weather, perhaps proceeds from the ſtrength of its roots, though the effect may be eaſier deſcribed than the cauſe accounted for.

4. *On*

4. *On Seed Work.* Sowing in the broadcaſt way may be ſaid to be the univerſal mode in North Britain; for the trifling deviations from it can hardly be received as an exception. Upon well prepared lands, if the ſeed is diſtributed equally, it can hardly be ſown too thin; perhaps two buſhels per acre are ſufficient; for the heavieſt crops at autumn are rarely thoſe which ſhewed the moſt vigorous appearance through the winter months. Bean ſtubbles require more ſeed than ſummer fallows; becauſe the roughneſs of their ſurface prevents ſuch an equal diſtribution; and clover leas ought to be ſtill thicker ſown than bean ſtubbles. Thin ſowing in ſpring ought not to be practiſed, otherwiſe the crop will be late, and imperfectly ripened. No more harrowing ſhould be given to fields that have been fallowed than what is neceſſary to cover the ſeed, and level the ſurface ſufficiently. Ground which is to lye in a broke down ſtate through the winter, ſuffers ſeverely when an exceſſive harrowing is given, eſpecially if incumbent on a cloſe bottom; though, as to the quantum neceſſary, none can give an opinion, except thoſe who are perſonally preſent.

5. *On Pickling Seed.* This proceſs is indiſpenſably neceſſary on every ſoil; otherwiſe ſmut, to a greater or leſs extent, will, in nine caſes out of ten, aſſuredly follow. Although almoſt every practical farmer is agreed as to the neceſſity of pickling, yet they are not ſo unanimous as to the *modus operandi* of the proceſs, and the article which is beſt calculated to anſwer the intended purpoſe. Stale urine may be conſidered as the ſafeſt and ſureſt pickle; and where it can be obtained in a ſufficient quantity, is commonly reſorted to. The mode of uſing it does not however ſeem to be agreed upon; for, while one party contends that the grain ought to be ſteeped in the urine, another party conſiders it as ſufficient to ſprinkle the urine upon it. Some, again, are advocates for a pickle made of ſalt and water, ſufficiently ſtrong to buoy up an egg, in which the grain is to be thoroughly ſteeped: But whatever difference of opinion there may be as to the kind of pickle that ought to be uſed, and the mode of uſing it, all admit the utility of mixing the wetted ſeed with hot lime freſh ſlacked; and this, in one point of view, is abſolutely neceſſary, ſo as the ſeed may be equally diſtributed. It may be remarked, that experience juſtifies the utility of all theſe modes, provided they are attentively carried into execution. There is ſome danger from the firſt; for, if the ſeed ſteeped in urine is not immediately ſown, it will infallibly loſe its vegetative powers. The ſecond, viz. ſprinkling the urine on the ſeed, ſeems to be the ſafeſt, if performed by an attentive hand; whilſt the laſt may do equally well, if ſuch a quantity of ſalt is incorporated with the water, as to render it of ſufficient ſtrength.

It

It may alſo be remarked, that this laſt mode is oftener accompanied with ſmut, no doubt owing to a deficiency of ſtrength in the pickle; whereas a ſingle head is rarely diſcovered when urine has been uſed.

6. *On Harveſt Management.* It is advantageous to cut wheat before it is fully ripe; but in aſcertaining the proper ſtate, it is neceſſary to diſcriminate betwixt the ripeneſs of the ſtraw and the ripeneſs of the grain; for, in ſome ſeaſons, the ſtraw dies upwards, under which circumſtance, a field, to the eye, may appear to be completely fit for the ſickle, when in reality the grain is imperfectly conſolidated, and perhaps not much removed from a milky ſtate. Though it is obvious that, under ſuch circumſtances, no further benefit can be conveyed from the root, and that nouriſhment is withheld the moment that the roots die; yet it does not follow, that grain ſo circumſtanced ſhould be immediately cut, becauſe, after that operation is performed, it is in a great meaſure neceſſarily deprived of every benefit from the ſun and air, both of which have greater influence in bringing it to maturity, ſo long as it remains on foot, than when cut down, whether laid on the ground, or bundled up in ſheaves. The ſtate of the weather at the time alſo deſerves notice; for, when it is moiſt, or even variable, every kind of grain, when cut prematurely, is more expoſed to damage than when completely ripened. All theſe things will be ſtudied by the good huſbandman; and he will alſo take into conſideration the dangers which may follow, were he to permit his wheat crop to remain uncut till completely ripened. The danger from wind will not be loſt ſight of, eſpecially if the ſeaſon of equinox approaches; even the quantity dropped in the field, and in the ſtack-yard, when wheat is over ripe, is an object of conſideration. Taking all theſe things into view, it ſeems prudent and expedient to have wheat cut before it is fully ripe, as leſs damage will be ſuſtained from acting in this way than by following a contrary conduct.

If the weather is dry, and the ſtraw clean, wheat may be carted to the ſtack-yard in a few days; indeed, if quite ripe, it may be ſtacked immediately from the ſickle, eſpecially if it is not meant for early thraſhing. So long, however, as any moiſture remains in the ſtraw, the field will be found to be the beſt ſtack-yard; and where graſs or trumpery of any kind is mixed with the crop, patience muſt be exerted till ſuch is decayed and dried, leſt heating be occaſioned; which, independent of the loſs, is to the farmer a moſt diſgraceful affair.

7. *On Thraſhing Wheat.* Before thraſhing machines were introduced, the taſk of ſeparating wheat from the ſtraw was moſt arduous

arduous and difficult. The expence was not inconſiderable, whilſt the ſeverity of the labour almoſt exceeded the power of the ſtrongeſt man, eſpecially in unfavourable ſeaſons, when the grain adhered pertinaciouſly to the ear, and could not, without difficulty, be completely looſened and removed. In ſuch ſeaſons, expence was the ſmalleſt conſideration which influenced the huſbandman; it was the quantity of grain unavoidably loſt which occupied his attention; and, as it appeared difficult to find out a remedy, moſt people conſidered it as an evil which could no more be avoided than dirty ſhoes by a perſon walking on a wet road. In ſhort, the loſs was great in almoſt every caſe, but greater with wheat than any other grain. Every thing of this nature, however, may be prevented, now that thraſhing machines are introduced, provided the feeder is careful, and proportions the quantity on the board to the ſtrength of the impelling power. Wheat, in fact, is now the cleaneſt thraſhed grain, becauſe the length of the ſtraw allows it to be properly beat out before it paſſes the machine, which ſometimes is not the caſe with ſhort oats and barley. If horſes are uſed as the impelling power, thin feeding is neceſſary, otherwiſe the animals may be injured; but where wind or water is employed, the buſineſs of thraſhing is executed ſpeedily, completely, and economically.

Thus we have ſtated our ſentiments concerning the culture and management of this valuable grain; and truſt that, in ſome degree, the moſt proper ſoils for growing it in perfection, and the ſeveral proceſſes of preparation, are ſatisfactorily explained. The cultivation of wheat is every year on the increaſe, and no branch of huſbandry deſerves to be inveſtigated with more ſedulity and preciſion. This increaſed cultivation has gone forward in ſpite of obſtinate and antiquated prejudices, in defiance of deciſions of our law courts, and in oppoſition to the ſentiments of landed proprietors, who, a few years ago, miſtakenly ſuppoſed that their reſpective properties would be deteriorated, nay, even ruined, were wheat allowed to be ſown to a greater extent than conſiſtent with the practice of former times. No truth, however, is more certain, than that wheat does not injure the ſoil, if good management is exerciſed; and, without good management, the farmer will rarely derive much advantage from increaſing the breadth of his wheat land. He muſt fallow extenſively, in the firſt inſtance, and deal largely in green crops before he can ſucceſsfully cultivate wheat on a large ſcale; and it is the intereſt of proprietors to hold out every encouragement for increaſing the growth of this grain, for no other ſyſtem is ſo well

well calculated for increaſing their rents, and promoting agricultural proſperity.

D.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Botanical Key to the Letters of S. L. on the Qualities of Soils proper for rearing Sheep.

SIR,

I agree with your correſpondent M. S. (p. 428. of your laſt Vol.) in conſidering it neceſſary for ſuch farmers as wiſh to convey their ideas to the public, to be acquainted with the botanical names of common plants; becauſe the Engliſh language being defective in names for even the native graſſes that cover our ſoils, we are under the neceſſity of uſing the Latin nomenclature of Linnæus, in order to be generally underſtood.

Almoſt every diſtrict in Great Britain has different provincial names to paſture plants. Hence it is not wonderful, that the names given by S. L. ſhould not be underſtood by M. S. To ſupply that defect in the intelligent papers of S. L. I ſhall here, to the beſt of my knowledge, furniſh Linnæan names to the plants mentioned by him.

A. S.

Deer Hair — —	*Scirpus cæſpitoſus.*
Ling, more generally called Moſſcrops, or Bog-cotton	*Eriophorum vaginatum.*
White Bent — —	*Nardus ſtricta.*
Fly-Bent — —	*Aira cærulea.*
Stool-Bent, or Wire-Bent	*Juncus ſquarroſus.*
Common Heather, or Heath	*Erica vulgaris.*
Bell-Heather — —	*Erica cinerea.*

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the difference betwixt Engliſh and Scotch Corn Meaſures.

SIR,

As the relative victual meaſures of England and Scotland are not generally underſtood, I ſubjoin a note thereof, which may be inſerted in your Magazine.

A quarter of wheat, or a quarter of peas, are about 3 *per cent.* leſs than two bolls of our wheat or peas Linlithgow meaſure; and a quarter of barley or of oats are nearly equal to 1¼ bolls of our barley or oats Linlithgow meaſure. Yours, &c.

J. M.

BRANCH II.

Review of Agricultural Publications.

A Treatise on Leases; Explaining the Nature and Effect of the Contract of Lease, and the Legal Rights enjoyed by the Parties. Second Edition, Enlarged. By Robert Bell, Lecturer on Conveyancing, appointed by the Society of Writers to the Signet. 8vo. Constable & Co. Edinburgh. 1805.

In a former article (vol. 4. p. 323.) the first edition of this useful work was noticed; and we feel much satisfaction that a second edition has been so soon called for, especially as opportunity was thereby afforded for enlarging and improving it considerably. Few subjects are indeed of greater importance to agriculturists than those here treated upon, because the advancement of rural prosperity in every country, almost absolutely depends on the degree of security afforded to cultivators; and though the legal system of Scotland cannot be considered as hostile to that class, yet, on a perusal of this work, instances may be found, sufficient to prove, that property invested in cultivating the soil is more imperfectly secured than that devoted to trade and manufacture.

From some excellent prefatory remarks, we are led to believe that Mr Bell is not insensible of the defects of our legal system, as it applies to the occupiers of land. He says,

'The relative situation of landlord and tenant, has undergone a very material change. Anciently, the lease was more an agreement for mutual protection and defence, than an agricultural contract; its principal use was to express the consent of the proprietor, that the tenant should have possession of his land: and instead of a mutual deed binding on both parties, it was a mere grant to the tenant, whose acceptance was never doubted.—The tenant of those days had no capital to employ; the trifling improvements he was able to make were insufficient to give importance to his rights; and, in these circumstances, it is no matter of surprise, that the dispofal or alienation of his right to possess the land should have been denied to him.

'Very different is the modern contract of lease. The tenant, bringing with him capital, skill, and industry, concerts with the proprietor a plan of operations from which is to arise a profit, the subject of fair division betwixt them, in proportion to the contributions of each. The interest of the tenant, under such an arrangement, is very different from that of the tenant under the old lease; and sound policy concurs with individual justice in securing to him the rights, and powers, and privileges

leges for which he ſtipulates, as well as in holding him bound to fulfil the engagements which he undertakes.' Pref. p. v. vi.

Theſe ſentiments are highly liberal, and ſhew that Mr Bell has formed a correct opinion concerning the great change which latterly has taken place amongſt agriculturiſts. Though right and wrong, abſtractedly conſidered, muſt always remain the ſame things in every age; yet, undoubtedly, as the leading points of connexion between proprietors and tenants are now materially altered, the connexion itſelf ought to be regulated upon different principles than thoſe formerly acted upon, becauſe the relative ſituation of the parties is greatly changed. In former times the occupier was ignorant, and knew little more of the world than was to be diſcovered within the limits of his own barony or pariſh; he was poor, hence unable to make improvements of any kind; and had he even been able, the ſlaviſh attachment to ancient uſages and cuſtoms, which then influenced practical agriculturiſts, would have effectually prevented him from ſtepping out of the beaten path. In fine, the agriculturiſt, at the period alluded to, was incapable of doing more than barely tilling and ſowing the ground; and, even in theſe arts, poverty of ſtock, and debility of implements, often rendered the practice defective; whereas, at this day, the great body of cultivators are well educated, hence poſſeſſed of minds diſpoſed to gain information from every quarter; they are provided with ſufficient capital ſtock, hence capable of going through with the moſt arduous and extenſive undertakings. The practice of the art (philoſophers will not allow us to call it a ſcience) is likewiſe conducted upon principles oppoſite to thoſe which guided our forefathers; therefore, to judge or determine agricultural queſtions in our law Courts, according to the rules and deciſions eſtabliſhed by them, is an anomaly of a moſt miſchievous tendency. Had practice remained ſtationary, precedents, with ſome juſtice, might have been reſorted to; but, under exiſting circumſtances, ſuch a reference is manifeſtly abſurd. To borrow the words of a Correſpondent in a former Number, ſuch deciſions are as inapplicable to the preſent ſtate of huſbandry, as the ſtatutes of King James VI. againſt coſtly *claithing*, are to the faſhions of the age in which we live.

The juſtice of theſe remarks is in ſome meaſure ſupported by the ſentiments of Mr Bell; for, p. 6. of the Preface, he declares, that 'many of the deciſions, by which the legal rights ariſing from the leaſe have been eſtabliſhed, were pronounced under impreſſions ſo different from thoſe of the preſent day, that they can ſcarcely be expected to quadrate with the nature of the modern contract.' This obſervation is correct, and meets with

our fullest approbation; but, if old decisions do not quadrate with the contract under which land is now possessed, much less will they bear upon any branch of actual practice, though daily founded upon in our law Courts. Some of these shall afterwards be more particularly noticed: in the mean time, we cannot avoid expressing some surprise that Mr Bell should have so often quoted these old decisions, when treating upon the different subjects which come under his consideration. As for our part, we freely own that none preceding the middle of last century, we mean those which relate to practice, deserve more regard than the resolutions of a bench of drunken porters.

Having offered these preliminary remarks, it is time to examine the different subjects treated of in this valuable publication.

The First Chapter treats of the ancient state of the lease. Mr Bell, in this place, endeavours, we think unsuccessfully, to refute the hypothesis of Lord Kaimes, who supposed the husbandman to have been originally a slave, and afterwards gradually emancipated, till at last he obtained a lease for years. An inquiry of this nature, however, is more curious than useful. In fact, the lease has progressively assumed its present shape, and will constantly change its features according to the disposition and ingenuity of conveyancers. That charters, on which sasine followed, were granted at one period instead of leases is admitted by Mr Bell; but, without founding any thing on this admission, it may safely be acknowledged, that no deed whatever was capable of resisting a feudal baron who conceived enmity against a tenant, and wished to turn him out of his possession. Even the celebrated act of 1449, by some considered as the Magna Charta of Scotish tenants, furnished small security to those in whose favour it was passed for more than a century afterwards. This act sufficiently displays the light in which occupiers of land were viewed at the time it was passed. They seem to have been considered as a part of farm stock, removeable without ceremony, when the property was sold, just like horses and cattle at the conclusion of a lease. Perhaps every proprietor stocked his own property with people in those doleful days, and allowed none but faithful retainers to reside within his bounds. The sword of justice was then but feebly wielded. Strictly speaking, every baron was justiciary within his own territories. Between individuals he might act impartially; but what redress could any man expect who had the culprit for his judge? In fact, the state of the Lowland districts, three centuries ago, was not superior to that of the Highlands before the rebellion in 1745. None durst pretend to reside on the territories of a baron or chieftain, in either case, who resisted his will; and security was only gained by obeying every command, no matter whether lawful or unlawful.

The

The firſt ſection of Chap. II. contains much information well digeſted, concerning the leaſe which will be ſupported under the act 1449. This act, by the interpretation of our judges, extends to lands, houſes, mills, fiſhings, coalleries, or whatever is *fundo annexum*; and though expreſsly paſſed for the *ſafety and favour of the poor people who labour the ground*, yet, in the way in which it is adminiſtered, neither ſafety nor favour is, in many caſes, obtained. We allude to the diſtinction aſſumed (for the act itſelf makes none) betwixt the grantor or his heirs, and ſingular ſucceſſors, whether onerous or gratuitous, where leaſes of long endurance have been granted. This ſubject lately occupied the attention of our reſpectable friends, the Eddleſtone Club; though, without noticing the ingenious arguments uſed by them, or the deciſions quoted by Mr Bell, we ſhall offer our opinion on the naked queſtion, of what ſecurity a tenant ſhould receive from a leaſe properly executed? By *properly executed*, we mean when the bargain previouſly made by the parties has been regularly and formally reduced to writing, and put upon a paper containing a ſtamp of the value directed for ſuch deeds by the laws of the country. We lay the act 1449 aſide, and conſider the ſubject ſtripped of all adventitious and collateral circumſtances.

In the *firſt* place, when a parcel of ground is ſet by one man to another, for a given number of years, and for a ſtipulated annual rent, it would appear that the leſſee ſteps immediately into the ſhoes of the leſſor, and that he ought to remain in them during the period for which the land has been ſet to him; alſo that he is entitled to reap every advantage which the other could have reaped from the ground, unleſs reſtricted by reſervations and covenants expreſſed in the deed, which, of courſe, to a certain extent, prevent him from the full enjoyment of the property.

2*dly*, According to reaſon and common ſenſe, it would appear that no diſtinction ought to be made, whether a leaſe thus mutually entered into and formally executed extends to ten, nineteen, fifty, or even an hundred years, providing the laws of the land do not reſtrain the owner or proprietor from granting one of that endurance. Here we allude to the act 1685 reſpecting entails, which indirectly prevents leaſes of long endurance from being legal; or, in other words, puts power into the hands of an individual, to reſtrain his heirs from granting longer leaſes than he, in his ſuperior wiſdom, judged expedient. We ſay, that, in every caſe, where no ſuch legal reſtraint exiſts, the proprietor in poſſeſſion is entitled to grant leaſes of any endurance he pleaſes; and that the leſſee and his heirs are entitled to hold and poſſeſs the premiſes during the whole period of endurance, whoever afterwards becomes proprietor. If the proprietor in poſſeſſion can alienate the pro-

perty by ſelling it (and if not entailed or burthened by previous ſettlements, no one can ſtop him); then, aſſuredly, he may tranſfer it to another for a certain number of years, upon receiving an annual rent on that account.

3*dly*, If proprietors have granted leaſes of what is called long endurance (for long and ſhort, as Mr Bell properly obſerves, are only comparative terms), in what ſhape is the intereſt of a purchaſer or ſingular ſucceſſor affected thereby, or what right can ſuch have to inſiſt afterwards in a proceſs of removal againſt a tenant ſo circumſtanced? If the purchaſer or his agent had been pleaſed to take the trouble, it was in their power to aſcertain the duration of every exiſting leaſe, and to eſtimate the value of the purchaſe accordingly; and if they were not pleaſed to take that trouble, does their neglect produce a reaſon for compenſating them at the coſt of the occupier? Surely not; and yet the avowed principle of every ſuch proceſs muſt be formed on this baſis. A ſingular ſucceſſor, who did not neglect to make the neceſſary inquiries concerning the nature and duration of leaſes exiſting upon a property purchaſed by him, is not in a worſe ſituation than the regular heirs of him who granted the leaſes; and yet it would appear, that a diſtinction is made by the ſages of the law, not warranted by the principles of juſtice and equity, nor ſupported by analogous inſtances in their deciſions concerning other branches of property. Here we are reminded of an anecdote well known in a certain diſtrict. One morning in harveſt-time, after a heavy gale of wind, a tenant, whoſe ſteading was near a high hill, or *law*, found a great number of peaſe ſheaves blown on his land from an adjoining farm, and inſtantly yoked his carts and drove the whole to his ſtack-yard. For this he was called before the proprietor of the barony, who interrogated him how he got the ſaid peaſe ſheaves: 'Pleaſe your honour,' replied the tenant, 'I got them as your honour got your eſtate, by a *ſwirl of the law.*' Surely, when a ſingular ſucceſſor reduces a leaſe for no better reaſon than becauſe it is of long endurance, the concluding part of the tenant's reply is very applicable.

Thus we have given our opinion on the naked queſtion; and, notwithſtanding our law courts ſeem hitherto to have thought differently, we concur with Mr Bell when he ſays, p. 48, 'Were the queſtion to occur, the Court might find it a very difficult thing to give effect to a leaſe for nineteen years, and refuſe effect to a leaſe of any greater preciſe period of endurance.' In fact, a declaratory law of the Legiſlature ſeems abſolutely neceſſary to ſet the queſtion at reſt, otherwiſe tenants cannot be ſufficiently ſecured.

The Third Chapter furniſhes much uſeful matter, particularly concerning the deſtination of the leaſe. To every farmer, who has more

more ſons than one, it is a material point to know, what right he has to name an heir; and though we are afraid that the laws of the country, in this reſpect, are ſtill too much influenced by an old feudal bias, yet thoſe ſo circumſtanced muſt derive benefit from the deciſions condeſcended on by Mr Bell, eſpecially as they are of modern date.

'*The tenant's power to name an heir.*—This is a queſtion of conſiderable importance to the tenant; for, where a leaſe is given to the tenant and to his heirs, and the leaſe, at the ſame time, contains an excluſion of aſſignees and ſubtenants, the tenant, if, under this form of deſtination, he has no power of naming an heir, may find himſelf very unpleaſantly ſituated. For inſtance, his eldeſt ſon has gone into ſome other line of life, he knows nothing of farming, and his capital is otherwiſe employed; while a younger ſon has been bred up with himſelf, and underſtands farming, and the management of that particular farm. Can any thing be more unjuſt, or more hurtful to all concerned, than to prevent this tenant from diſpoſing of his leaſe to the ſon moſt capable of turning it to advantage; while the eldeſt ſon is forced to give up his profeſſion, to withdraw his ſtock from the buſineſs in which he has been engaged, and to employ it in farming, of which he is ignorant? The conſequence naturally will be, to ruin both of theſe ſons: To ruin the eldeſt, by inducing him to engage in a buſineſs of which he knows nothing: To ruin the other, by depriving him of an eſtabliſhment in that line for which his education has fitted him. Or, can it be for the advantage of any of the parties, that the tenant ſhould be bound to divide the right of a ſucceſſion amongſt half a dozen of heirs-portioners? Nothing, certainly, can be more abſurd than all this; and yet the reſtriction has been very naturally introduced.

'In judging of the tenant's intereſt in a leaſe, though the ſame conſiderations do not now exiſt which were of old taken into view, they, no doubt, have given a certain bias to the opinions on this point; and there are ſtill conſiderations which may be allowed to affect the landlord, and to induce him to prefer one tenant to another. One tenant may poſſeſs ſkill or capital ſufficient to make it a deſirable object to the landlord to retain him as his tenant, while another may be of ſo quarrelſome a diſpoſition as to render it equally an object with the landlord to keep him out of the poſſeſſion; and accordingly, the right under which a leaſe has been given, has been held to contain the conditions of the tenant's poſſeſſion; and poſſeſſion to any greater extent, or in any other ſhape than what has been allowed by the terms of the leaſe, has been refuſed to be given. This conſtruction is founded in the nature of the leaſe; and therefore we ſhall not be ſurpriſed that there has been a deciſion of the Court, finding, that where a tenant was prohibited from aſſigning or ſubſetting, he could not appoint a perſon to ſucceed him in the form of an aſſignation: November 20th, 1798, Lord Minto againſt Deuchar.

'This queſtion has ſince been under very full diſcuſſion in the caſe

of Colonel Cunningham *v.* Grieve, decided in the Court of Seſſion, March 8th, 1803.

'William Grieve obtained, (18th January, 1759) a leaſe of the lands of Barlaugh, to him and his heirs, ſecluding aſſignees and ſubtenants. The endurance was for thirty-eight years, and for the lifetime of William Grieve, or of his heir or heirs, who ſhould, at the end of the leaſe of thirty-eight years, have ſucceeded to, and be in poſſeſſion of the lands. William Grieve (2d September, 1790) made a ſettlement, diſinheriting his eldeſt ſon; and having died a year before the expiration of the thirty-eight years, his ſecond ſon took the poſſeſſion, and paid his rent, without challenge, to Colonel Cunningham, to whom the lands now belonged. His poſſeſſion and payment continued after the expiration of the thirty-eight years; but, at laſt, an action of removing was brought. Lord Armadale decerned in the removing, reſerving to Adam Grieve, the heir at law of the father, to claim poſſeſſion of the farm. The Court adhered to this judgment; and, on a ſecond petition, a hearing in preſence was ordered. After this very full diſcuſſion, the Court (though much divided) adhered finally to the Lord Ordinary's judgment.

'In the Houſe of Lords, an appeal having been taken on the part of Wm. Grieve the ſecond ſon, the caſe was thought fit to be remitted to the Court of Seſſion, for further conſideration.

'In the interval between the deciſion of this caſe of Cunningham's in the Court of Seſſion, and the order of the Houſe of Lords, another caſe occurred, in which it was attempted to raiſe a diſtinction in favour of the perſon named by the tenant, on the ground of the word *executors* uſed in the deſtination of the leaſe. The leaſe was, like Grieve's, for 38 years, and the lifetime of the tenant, if then in life; or if dead, for the lifetime of his neareſt heir or executor then in poſſeſſion of the farm, and it bore the ſame excluſions. The tenant dying during the leaſe, his ſon and heir made a general diſpoſition in favour of his mother, conveying expreſsly to her the leaſe, and conſtituting her the general diſponee and executor:—he alſo died, and ſhe entered to poſſeſſion. It was ſaid on the Bench, that executors are, in the eye of the law, only *hæredes fiſti*, not *nati*. But the Court in general, thought this introduction of the word executors, was unſkilful, ignorant, and unauthorized, and that no real difference could be diſtinguiſhed between this caſe and Grieve's; and, accordingly, the Court decided againſt the tenant, 6th June 1804.

'A petition againſt this judgement was preſented at the time of the remit in Cunningham's caſe, and, in the view of that further diſcuſſion, ordered to be anſwered. The two caſes ſtand over to be decided at the ſame time.

'I may be allowed to obſerve, that were the judgement in theſe caſes to be finally confirmed, the principle, however applicable it may be to queſtions betwixt the landlord and tenant, does not apply to queſtions amongſt the heirs of the tenant. The regulation is intended for the landlord alone, and is *jus tertii* to the heirs; they are not entitled to found

found on it: of this we have an instance, Hay v. Wood, December 8. 1801. How the judgement may ultimately stand, it is not easy to say: the exclusion of assignees and subtenants is meant to secure the skill and capital of the tenant in labouring the farm, and is clearly intended for the sole benefit of the landlord; it may be said to be the condition under which the tenant holds, and he must submit to its consequences. But this effect being given to the clause, neither justice nor expedience seems to require more;—it is not a clause in favour of the heir of the tenant—it is not meant to restrict the tenant's power of regulating his succession—the landlord, in securing the possession of the tenant during the currency of the lease, or during his life, never meant to do more, and cannot be understood as having created an entail in favour of the heirs at law of the tenant; neither can it be presumed that the tenant had any intention of bringing himself under a restriction to these heirs:—Why then should this clause be so construed as to produce this effect; and, contrary to the intention of the parties, contrary to the common rules of law, (which allow a freedom of disposal of property at the death of the proprietor), and contrary to expediency, should a tenant so situated be prevented from exercising the right of a proprietor over his property? A distinction betwixt those conveyances, which are meant to denude the tenant, and to introduce a stranger into the possession during the lifetime of the tenant, and those which are meant to take place only after the death of the tenant, would do justice to all parties. It is this ground which has been strongly urged on one side, in the opinions which have been delivered in the Court of Session. But it is unnecessary to say any thing on a subject that must so very soon receive a final judgement, that will regulate in future the power of the tenant to name an heir, where the lease excludes assignees.

'This, like every other question which can arise on a deed that is daily renewed, in place of being left to be decided by arguments drawn from the nature of the lease, or the expediency of the measure, ought to be precisely fixed by the parties entering into a lease. The tenant ought to look forward to the possible contingencies of the period of endurance, and provide accordingly; nor is the power which the circumstances of the tenant's situation may render it proper for him to possess, in case of his dying during the currency of the lease, a power which ought to be denied to him, even where there is a strict exclusion of assignees and subtenants.

'Another consequence arising from this mode of expressing the lease, and excluding assignees and subtenants, and not less embarrassing than the former, may occur where the tenant has no wish to dispossess the heir at law; but where the heir at law, at the death of the tenant, is an infant unable to take the management of the farm.—Is it to be conceived that the law, out of favour to the heir, shall give him (even where he has been omitted), the benefit of the lease for the period of its endurance, and yet prohibit him, where he has an express right, from making use of it in the manner most for his advantage? Or shall he be

bound

bound to the landlord, and at the ſame time deprived of the means which may enable him to perform theſe obligations? This appears moſt unjuſt; but what are the infant children of the tenant to do? They may employ a manager; but who is to overſee this manager? And if he is under no controul, were it not more for the intereſt of the heir to reſign the leaſe at once? In general this would be the moſt prudent meaſure; hence, on the death of a tenant leaving an infant heir, the leaſe would be returned to the landlord, or it would go into the hands of a manager, and involve the affairs of the minor in inextricable confuſion.

'If, to avoid the dangers of ſuch a management, the friends of the heir were to propoſe a permanent management during the pupillarity of the heir, by which the leaſe ſhould be put into the hands of a man capable of conducting the buſineſs of the farm, and who ſhould, in place of accounting for the produce, become bound to pay a fixed annual profit to the heir, until the heir himſelf were able to take the management; here, again, the terms of the leaſe would be brought in oppoſition to the plan. It cannot be done by an aſſignation, neither can it be done by a ſub-leaſe, for theſe are expreſsly prohibited; and even the power of appointing a permanent manager ſeems to be queſtionable, and is a point on which the Court have heſitated. Nay, it would rather appear, as far as the caſe has hitherto been judged of, that, in the opinion of the Court, a permanent management is not effectual againſt the landlord. In the caſe of Boyd againſt Alexander, the leaſe excluded aſſignees and ſubtenants. The tenant died, leaving an infant family; and the friends entered into an agreement (one of them being named factor *loco tutoris*) with a farmer for 13 years, or till the heir's coming of age, to relieve the family of all the preſtations of the leaſe, to give them houſe-room, potato-land, &c. and to pay a conſiderable ſurplus rent; and the agreement had received effect for ſome years, when it was at laſt challenged by the mother of the children, who had obtained herſelf appointed factor *loco tutoris* on the reſignation of the former factor; and although the Court, in deeming to remove, proceeded principally on grounds not connected with the preſent ſubject, much weight was given to an alleged diſapprobation on the part of the landlord, 29th June 1802.

'It will probably happen, that the importance of agriculture, the extent of the capital employed, and the degree of information requiſite in the tenant, will in time be found to entitle this uſeful claſs of men to greater privileges than they at preſent enjoy. But certainly a tenant, who has agreed to give up all power of aſſigning or ſubſetting, would ſtill be greatly awanting to himſelf and to his children, ſhould he not ſtipulate a power of naming an heir, and of appointing managers during the minority of thoſe who may ſucceed to him. Theſe are powers which, in duty to himſelf, a tenant ought not to give up, and which, in ſound policy, the landlord ought not to refuſe.' p. 132—151.

It would be ſuperfluous to enlarge upon this queſtion, ſeeing it is ſo ably and judiciouſly illuſtrated by Mr Bell. Indeed

it

it would be premature were we to ſtate our ſentiments, ſince the caſes quoted are not finally decided. But one thing cannot be overlooked, namely, the inſatiable deſire which influences many proprietors to retain their tenants in feudal bondage, notwithſtanding that a complete manumiſſion therefrom is abſolutely neceſſary for the encouragement of improvements. If the ſtate of ſociety, if the welfare of the country, if the proſperity of agriculture ſhall be diſregarded (and ſurely theſe circumſtances are diſregarded, when a tenant is neither ſecured againſt ſingular ſucceſſors, nor allowed to nominate an heir to his leaſe from amongſt his own children), and if law ſhall be diſpenſed to cultivators according to the uſages and cuſtoms of former times, when their ſtate and condition was altogether different, then, to be ſure, we are not yet arrived at ſuch a perfect ſtage of polity as many people ſanguinely believe. A paſſage from that judicious and well informed writer Adam Smith, is not inapplicable to the ſubjects before us, and with it we ſhall conclude this article. 'The proprietors of land were anciently the legiſlators of every part of Europe. The laws relating to land, therefore, were all calculated for what they ſuppoſed the intereſt of the proprietor. It was for his intereſt, they had imagined, that no leaſe granted by any of his predeceſſors ſhould hinder him from enjoying, during a long term of years, the full value of his land. Avarice and injuſtice are always ſhortſighted, and they did not foreſee how much this regulation muſt obſtruct improvement, and thereby hurt, in the long-run, the real intereſt of the landlord.'

N.

(To be continued.)

A Treatiſe on the Origin, Qualities, and Cultivation of Moſs-Earth. By William Aiton, Writer in Strathaven. pp. 178. 8vo. Sold by Conſtable & Co. Edinburgh, 1805.

THOUGH in a dedication to the Highland Society, the author beſpeaks allowance, on account of his want of the advantages of a liberal education, yet he would, nevertheleſs, appear to have remedied this diſadvantage, in a good meaſure, by induſtry and application. His performance diſcovers an acquaintance with claſſical antiquities, as well as with thoſe of his own country. He appears a man of conſiderable reſearch and obſervation. His ſlender knowledge of the principles of chemiſtry (which he himſelf regrets), is an obvious diſadvantage to any one who would wiſh to treat of a ſubject of this kind with accuracy. We doubt not,

not, however, but that his rough observations and remarks may be of considerable use to the practical farmer; and we heartily concur with him, in wishing that his work may excite a spirit of moss-culture among the moorland lairds and farmers of Avondale. The author's manner of treating his subject appears to us sufficiently diffuse; he seems to have fallen into the common error of authors, who wish to exhaust the subject they have undertaken; and who put down, in their books, all that they well know, and all that they imperfectly know.

Having stated this general character of the work, we proceed to lay before our readers a short account of its contents.

In a spirited Introduction, the author calls the attention of the public to the subject of moss. He considers about a sixth part of (what might be) productive land, through Scotland, as covered, at present, by this *intruder*, as he designs it:—which, till some method is followed, of converting it to some useful purpose, must remain, not only steril in itself, but the cause of sterility, all around; both from its quality of retaining moisture, as the source of continued cold and damp from evaporation, and also from its quality of *retaining cold;* by which, or equivalent modes of expression, the author would seem to consider *cold*, not as the mere *privation* of *heat*, but as a *positive quality*.

Taking it for granted, in the mean time, from these considerations of its nature, that moss has poisoned and depraved our climate; the author proceeds to show, from Cæsar and Tacitus, and the Augustine historians, that, in ancient times, the climate of Great Britain was reputed milder than that of Gaul (that is, modern France); and, indeed, among the Romans, *the rigour of a Gallic winter* was proverbial;—that the country was prolific in most sorts of fruit trees; that even the culture of the vine was not considered as unsuitable, as appears by a permission craved from and granted by the Emperor Probus, in the year 278, to plant vines and to make wine. The ancient superiority of the climate he endeavours also to establish, from the huge size of trees found under mosses, where (as will after appear) they had grown, under exposures and in altitudes above the sea, where no trees can at present be raised; and that trees of the very largest size were common to Britain, he further confirms by the fact, that, when Archimedes, 2000 years ago, constructed, at Syracuse, a ship of extraordinary largeness, a tree of size sufficient for the mast could not be found upon the shores of the Mediterranean, but had to be commissioned from Great Britain. The ancient superiority of the climate of Scotland, in particular, the author considers as evinced, by the allocation, in charters to religious

religious houſes, of rents in *wheat*, over farms now utterly unfit for the culture of that grain. *

To eſtabliſh this favourite poſition, the author, we are afraid, has recourſe to evidence of ſtill more ambiguous deſcription; ſuch as, the greater quantity of cattle kept upon commons, than what theſe lands, under different maxims of management, are now found capable of ſupporting; the noted fact, of our anceſtors going ſtark naked, like the preſent inhabitants of the frozen climate of Terra del Fuego. We ſuppoſe, alſo, the author would not, *now*, have quoted the authority of Oſſian's Poems, for the ſtate of the climate, or for any other matter of fact.

After this introduction, the author lays down the plan of his work; which is, to treat of moſs, 1ſt, as to its origin; 2d, its qualities; 3d, its uſes.

The author ſeems moſt at home in the firſt part of his plan. This part connects itſelf with his Introduction.

In the Introduction, he had preſumed, from probable conſiderations of the nature of moſs ſoil, that moſſes depraved the climate; and that ſuch depravation had in fact enſued to this climate, he had endeavoured to eſtabliſh, in evincing its ancient ſuperiority. The origin of this difference muſt be ſought for, in conſidering the circumſtances which differenced the ancient from the modern ſtate of the country: The moſt ſtriking difference is, that, formerly, it was covered with wood, and that now it is cleared of its foreſts: Now, all moſſes are found incumbent upon overturned foreſts of trees: Hence the origin of moſs from felled foreſts; and the ſubſequent depravation of climate which has taken place.

In the firſt part of the Eſſay, then, our author proceeds to eſtabliſh, ſtill more firmly, this theory of the origin of the moſs. And, firſt of all, he endeavours to invalidate ſuch theories as deduce its origin from other cauſes; in conformity to the maxims of diſputation laid down by Mat, in Prior's Alma.

> 'And ſtill your knowledge will increaſe,
> As you make other people's leſs.
> In arms and ſcience 'tis the ſame;
> Our rival's hurts create our fame.
> At Fanbert's if diſputes ariſe
> Among the champions for the prize;

To

* We do not conſider this argument as perfectly concluſive. Wheat might be allocated, *as a value*, where it did not grow, juſt as money is allocated, where there are no mines. The Court of Seſſion allocate victual ſtipends on muir farms, where the plough could not be uſed, but to diſadvantage.—Rev.

To prove, who gave the fairer butt,
John ſhews the chalk on Robert's coat.
So, for the honour of your book,
It tells, where other folks miſtook:
And, as their notions you confound,
Thoſe you invent get farther ground.'

He firſt combats the opinion, (generally prevalent, he obſerves, in his part of the country), 'that moſſes are the depoſitions of the waters of the general deluge.' This opinion he endeavours to confute, both with wit, and with argument. His wit, we conſider, as merely ariſing to ſportive levity; his arguments are, however, of more conſideration.

Whilſt Roman, Phœnician, Celtic, and Saxon remains of antiquity (of which a variety of inſtances are ſtated), frequently preſent themſelves, lying upon the ſubſoil, under moſſes; not a veſtige can be found of any thing that can be aſcribed to the antediluvian period.

Had the large trees (which, he aſſerts, are invariably found under every deep peat-moſs) been torn up by the roots, or broken over, by the agitation of the waters at the deluge, and been afterwards depoſited as the waters ſubſided, they muſt neceſſarily have exhibited an appearance very different from what is invariably preſented in fact. They muſt have been found with the roots attached to them, (a circumſtance hardly occurring, excepting in ſuch ſtunted ſhrubs, as may well have been ſuppoſed to have grown upon the moſs, after it had begun to collect, and to have been eaſily torn up by the roots, from ſo looſe a ſoil, by the winds, correſponding to their general ſituation *in the middle of the moſs*)—Or they muſt have been found broken over; all different kinds huddled together, probably lying in heaps, and depoſited indifferently as to kinds, upon every ſpecies of ſubſoil; nor correſponding roots found faſt in the ſubſoil contiguous to the proſtrate boles. Whereas, on the contrary, they are, almoſt univerſally, found, bearing the marks of the ax or of fire; the trees, under one moſs, all of the ſame deſcription, and appropriate to the ſubſoil, as oak upon clay, and fir upon ſand, &c. Moreover, had they been whelmed up, at once, and protected from the influence of the atmoſphere, amidſt the depoſitions of the waters; they would have been found in an equal ſtate of preſervation or decay throughout all their parts: inſtead of the appearance generally exhibited, of their having ſuffered the decompoſition of putreſcence, to a conſiderable depth, on the upper part; whilſt the under ſide, even its bark, is found in a ſtate of preſervation; an appearance which marks the gradual protection from the atmoſphere, afforded by the gradual accumulation of the moſs-ſoil.

Our

Our author proceeds to controvert the opinion aſcribed to Dr James Anderſon, 'that moſs is a plant *ſui generis*; which, like the hairs and nails of the human body, continues conſtantly to ſpring from the root, whilſt it becomes dead at the top; ſo that it is *quick moſs* at the bottom, but *dead moſs* at the ſurface, to the depth of from 6 inches to 2 feet:'—An opinion which, notwithſtanding all the ingenuity with which Dr Anderſon ſupported it, is, with apparent good reaſon, rejected as whimſical, unſupported by fact, and contrary to the analogy of vegetable nature.

In the Introduction, and in courſe of confuting, *in the firſt place*, the oppoſite ſyſtems of others, (a mode of arrangement of the ſubject which we do not much admire), he anticipates, in a great meaſure, (as was unavoidable in ſuch a mode of arrangement), his own theory, as will already have appeared in our review; which is, that 'moſs originates under a certain temperature of cold *, from the ſucceſſive growth and decay of aquatic plants, in water ſtagnated over *felled woods*.'

In this theory he is, partly, ſupported by the late Dr John Walker; with this difference, that our author *falls his foreſts in their prime*, whilſt the Doctor *overturns his by natural decay*, through the aſſiſtance of a little wind, when they have become incapable of reſiſtance. In conformity with this theory, the Doctor obſerves that the trees are generally in a ſtate of decay, having loſt the bark, and lying with their heads averted from the airth of the moſt prevailing winds. But our author aſſerts, that the Doctor's obſervations muſt have been made through the mere medium of theory, and not of experience, as the fact is the reverſe of his obſervation; the trees not exhibiting decay, but vigour; not exhibiting marks of being broken over, or torn up by the roots, but of having ſuffered by the ax or ſaw; nor lying in a direction which might be given by prevailing winds, but lying in every direction indiſcriminately. He doubts, alſo, whether trees gradually decayed would not, from their previous nearer approach to putreſcence, have produced mould inſtead of peat-moſs.

In farther confirmation of his theory, he proceeds to ſhew, that, in fact, the country formerly abounded with wood; and, further, that this wood was, at various times, cut down in large quantities, and left where it was felled. In this part of the ſubject much acquaintance with antient learning, and likewiſe with the antiquities of this country, is diſplayed. The authority

* He obſerves, that no moſs is to be found within 35 degrees of the Equator, or at any rate within the Tropics. Under the heat of ſuch climates, putrefaction is completed, and dead vegetables fall into mould.

authority of the Roman writers is quoted to prove, that Britain was anciently much overgrown with wood. It is designed by them as *horrida sylvis, roughened with wood.* The forest of *Anderida* was 100 miles long by 30 in breadth; and the *Sylva Caledonia* is represented as of much larger extent.

These extensive forests afforded fastnesses for the retreat of the inhabitants, into which the Roman legions could not penetrate; and it was necessary to cut them down, in order to accomplish the entire subjugation of the country. Some particular accounts remain of this clearing of the woods; and, without doubt, the same policy might lead frequently to the same measures, in many instances of which no record is preserved. The Emperor *Severus* employed, according to *Herodian*, not only the whole Roman legions, and foreign auxiliaries, then in Britain, upon this work, but also the subjugated natives; and, in this occupation of fatigue, according to *Dion Cassius*, he lost 50,000 of his soldiers, without ever having faced the enemy.

Nor was the felling of the forests confined to the Romans. According to *Eveling*, (in his discourse on forest trees), John, Duke of Lancaster, set to work, at one time, 24,000 axes, in clearing the woods of Scotland. According to Fordun, King Robert Bruce, in his expedition against Cummin Earl of Buchan, cut down some forests near Inverary. Tradition also retains the memory of several woods cut down or burnt, in the north of Scotland, by the Danes.

How recently any of these forests may have been cut down, does not appear upon record. The forest of Selkirk, comprehending that county, and running through that of Peebles and the upper parts of Clydesdale and Ayrshire, appears from record to have been in existence in the 12th century. It seems probable, that much wood might be cleared in the contentions of Bruce and Baliol, and the invasion of Edward of England; and that what escaped the ravages of war, might be cut down in the measures adopted for the extirpation of the wolf. In numberless districts, where wood was known to exist, and which are now abundant in mosses, and in many others abounding in mosses, but where the memory of their having been covered with wood is lost, the names of places are taken from *wood* or *bark*, (which our author considers as of the same signification), or of *Shaw*, which he says is the Celtic word for *wood*, or of *Calder*, which he says, in that language, signifies *oak-wood.*

Doctor Anderson is taxed of a fault, (too common to theorists), of rejecting facts which refuse to comply with theory, in almost totally denying the existence of any wood at all under mosses; and particularly under the moss of Kincardine on the Forth, where

where the Doctor aſſerts, that they are not to be found in the proportion of above a tree or two to the acre. Here our author contradicts the Doctor's ſtatement, upon the authority of his own perſonal ſurvey of that moſs in April 1804, when he ſaw it aſcertained, that the trees found under that moſs are at the rate of not fewer than 1000 trees of different ſizes per acre. From the ſtatiſtical accounts, too, the Doctor's averments ſeem univerſally contradicted.

Upon the whole, we conſider our author's theory of the origin of moſs, as by no means deſtitute of probability; and could have wiſhed he had been more verſant in chemiſtry, to have enabled him to give us a little more inſight into the *modus operandi* in this proceſs of nature. It may alſo be conſidered as unfortunate, that he has produced no ſtated obſervation of the actual formation of moſs from overturned wood. We have obſerved a fact ſomewhere ſtated, of wood overturned by wind, within the memory of thoſe alive, which in no very long period of time was covered up by moſs; and are inclined to believe that it is to be found in the periodical publication, called the Bee.

Our author rejects, as unneceſſary for agricultural purpoſes, and not very material in diſcuſſing the natural hiſtory of moſs, the multifarious diviſions of moſs by Doctor Walker, into the *gramineous* peat, *heather* peat, *inch* peat, *conſumed* peat, and *water-borne* peat. He conſiders it as ſufficient, to diſtinguiſh moſs into two kinds, viz. *Flow* or deep moſs, in flats or hollows, the origin of which he aſcribes entirely to felled foreſts; *bent* moſs, covered with better herbage, lying upon declivities, furniſhing the moſt ſolid, compact and blackeſt peat for fuel, but no wood found in it, and never exceeding eighteen or twenty inches in depth: the origin of this moſs, our author thinks, muſt either *directly* be aſcribed to the fall of wood of that ſtunted growth ſuited to ſuch expoſed ſituations, and which, from the declivity, could not ſo much ſtagnate the water, as to be covered by aquatics, before it was decompoſed by the influence of the atmoſphere; or *indirectly*, as originating from that chill and moiſt temperature of the air, produced from deep wood-moſſes in the vicinity, which occaſions the growth of thoſe aquatics upon the ſoil, whoſe ſucceſſive growth and decay produces the ſaid *bent-moſs*.

We have dwelt the longer on this firſt diviſion of the ſubject, conſidering it as the moſt curious, and as treated with conſiderable learning and ingenuity.

We cannot ſay ſo much in regard to the treatment of his other two diviſions.

In regard to the *qualities* of moſs, Mr Aiton's unacquaintance with chemiſtry reduces him to the neceſſity of referring his reader to Doctor Walker's analyſis of peat, in his prize eſſay, which he tranſcribes; and from which it appears that moſs eſſentially conſiſts of the conſtituent principles of putrid vegetables.

As to his third diviſion, the *uſes* of moſs, there is nothing ſtriking in the mode of treating it; though it may be very uſeful to thoſe to whom it is addreſſed. In regard to the cultivation of moſs ſoil, his general principle is to lay it dry, but not over dry. For this purpoſe, the draining furrows (excepting the main receiving drains) muſt be ſhallow, and the crowns of the ridges muſt be raiſed very little, although a little. An intereſting account is given of the cultivation of a very deep ſlow-moſs, near the village of Strathaven, begun ſo early as 1750, and continued ſucceſsfully down to the preſent time. Its extent is about 200 acres; the whole has been rented, within the memory of men now living, at half a crown; and it will now let at the rate of from 2l. to 3l. per acre. But our bounds will not admit of extracts. It would appear that moſs middings, after the mode of Lord Meadowbank, have been known in the author's neighbourhood thirty years ago. Something of the ſame kind may have been, we think, practiſed; but we ſuſpect always in ſuch accounts a little of *diſtrictal* vanity. We doubt much, if ever a moſs midden was at that time formed, with exact attention to proportion of materials; as to ſcientific principles, they are entirely out of the queſtion.

In America, the comparative coldneſs of the climate, in reſpect to Europe, under the ſame parallels of latitude, is attributed to the covering of the wood, the tops of which intercept the rays of the ſun, and prevent them from warming the earth: (See Dr Robertſon's Hiſtory of America.) It is curious to obſerve, in Scotland (if we may credit the fact), the ſame deterioration of climate produced, from the extirpation of the wood through the production of moſs-ſoil. F.

BRANCH

BRANCH III.

Agricultural Intelligence.

Our accounts from the different diſtricts of the iſland all agree in two particulars, namely, that rent and labour have of late increaſed moſt enormouſly in value; and many of our correſpondents ſeem rather at a loſs to account for ſuch a material alteration in theſe two important branches of rural economy. Indeed, the riſe which latterly has taken place is not to be accounted for on ordinary principles; for the ſources, from which it may be ſuppoſed to flow, ſeem rather to have dried up. Almoſt every one of the productions of the ſoil have fallen in price within the laſt ſix months; therefore, rent and labour, which muſt be paid for by the ſale of theſe productions, might have been expected to take rather a retrograde than a forward courſe. The ſubject, to be ſure, is an abſtruſe one, and ſcarcely to be inveſtigated with preciſion; but a few looſe and irregular ſpeculations thereon cannot be diſagreeable to our readers.

In the *firſt* place, the increaſed proſperity of the country for a number of years back occaſioned, with a few exceptions, every farm, notwithſtanding its being high taken at the time, eventually to turn out an equitable bargain. This reſult has led many perſons to imagine, that ſimilar circumſtances will continue to happen as have already happened: hence, offers for land have been ſhaped in ſuch a way, as if the proſperity of the country were to continue always in a progreſſive ſtate, without holding in view either the value of produce at the time, or laying any ſtreſs on the amount of bygone averages. This we preſume to be a fair ſtatement, though it muſt ſtrike every one that thoſe guided by impreſſions ſuch as thoſe deſcribed, are running a riſk equal to what they would have been expoſed to had they embarked in the moſt hazardous lottery concern. We do not mean to ſay, that the proſperity of the country will be diminiſhed. We hope it will not, and ardently wiſh that improvement may continue to ſpread with increaſed velocity. There is a turn, however, in human affairs, which is at all times to be dreaded, eſpecially after a long period of ſucceſs. The immenſe public burdens levied on the manufacturers and agriculturiſts of Britain are not calculated to put off that evil day, which, ſooner or later, has been the lot of moſt nations; and though it has hitherto been warded off with ſingular adroitneſs, (as a perſon in good health ſtands many blaſts, which would overcome

one in a debilitated ſtate), yet at one time or other, ſuch a criſis may befal us. The pitcher goes often to the well, but is broken at laſt.

In the *ſecond* place, the flouriſhing ſtate of agriculture, and the increaſed value of produce ſince 1795, have thrown much capital ſtock into the hands of thoſe who were concerned: hence, a ſpirit of ſpeculation has ſeized upon many perſons, and diſpoſed them to adventure upon a wider field, without being guided by the like prudential conſiderations, as, under different circumſtances, would have directed them. We by no means blame ſuch perſons for wiſhing to extend the circle of their operations; nay, are rather diſpoſed to think, that hitherto the field, upon which agriculturiſts have acted, has been more limited than neceſſary. This deſire of extenſion, however, has undoubtedly ſerved to increaſe the ſum of land rent above its real value; and, in that light only, it is mentioned.

In the *third* place, the increaſed ſize of farms has moſt aſſuredly contributed to augment the rate of rent; becauſe the number of competitors are conſtantly increaſing, whilſt the objects for which they contend are as regularly diminiſhing. The market value of any article whatever is regulated entirely by the demand which appears for it. If the ſellers exceed the buyers in number, then the article muſt inevitably fall in price; and the direct contrary will happen under different circumſtances. Juſt in this way has the increaſed and increaſing ſize of farms contributed to increaſe the value of land. The candidates on every vacancy are numerous; each one bids upon another; and ſo many are conſtantly left unſupplied, as juſtifies us in believing that the demand will not ſlacken, ſo long as the proſperity of the country remains undiminiſhed.

Thus we have thrown out a few looſe and unconnected thoughts on a ſubject which ſeems to have puzzled many of our correſpondents. Whether we are right or not in them all, is a matter of inferior importance, though we are diſpoſed to believe, that, in moſt of them, the mark is not far miſſed. It deſerves to be noticed, that the value of land has increaſed more in Scotland than in England; and that, even in the latter country, the riſe has been greater in the northern than in the ſouthern counties. Shall we attribute the greater riſe in Scotland to a more favourable rural ſyſtem which prevails there, and through which the tenantry are allowed to exerciſe greater ſcope and diſcretion than is beſtowed upon their ſouthern brethren? or ſhall we ſuppoſe it proceeds from the rural ſyſtem of the one being altogether unconnected with the political burdens which bow down and oppreſs that of the other? Both, perhaps, have their effects;

fects; though the greater rise in the northern counties of England must be entirely owing to the political evils which we have alluded to, being there more highly felt than in the southern and more early improved counties.

As to the rise in labour, we unquestionably think it must be placed to account of the increased prosperity of the country, which calls for the employment of a greater number of hands than, under different circumstances, would have been necessary. This rise few farmers have much cause to complain of; because, beyond all dispute, it occasions an increased demand for the several articles of rural produce, as was ingeniously shewn in the first number of last volume, by our worthy and much lamented correspondent Pol-Œconomicus. At the same time, it cannot escape notice, that the number of unproductive hands presently kept in Britain contribute to this rise; because such, to every intent and purpose, are withdrawn from rural labour, unless on extraordinary occasions, such as harvest-work and the like. No doubt, were such a number of soldiers and sailors regularly employed, the scale of labour would, in a few years, assume a more stationary appearance; for the population or number of people in every country, will always be equal to the extent of employment that is therein to be got, provided the quantity of food necessary for supporting them is to be found within its bounds.

The weather, during the current quarter, has been very changeable. November furnished excellent weather, something like that of April; but December and January have rarely shewn two days alike; frost and fresh, storms and calms, having alternately prevailed. Wheat-seed was finished under most auspicious circumstances, and field labour of every kind executed with singular success. Should the spring season be genial and favourable, the husbandman was seldom better prepared for undertaking its labours; and, even should it prove wet and backward, the ground, from being almost in every instance dry turned over, will be enabled to stand the harrowing process with less risk and danger than otherwise could have happened.

Corn markets have declined considerably since the date of our last publication, though for some weeks past they have been tolerably steady. If any opinion could be hazarded on such a versatile subject, it might be, that wheat and oats will rather advance in price than be depreciated, and that the prices of barley and beans will either remain stationary, or descend something lower. The early stoppage of the distilleries occasions us to think that barley will not be an article of advance; and as for

beans, it is now ſufficiently aſcertained, that they are a crop ſuperior to what was expected.

The butcher market does not afford much room for obſervation, little change having taken place therein during the quarter. It is ſuppoſed by many people, that turnips do not ſtand the ſame eating as might have been expected from their bulk, probably owing to the ſevere mildew which befel them in autumn. Be this as it may, we apprehend that the greateſt loſs will be felt in the ſpring months, in caſe a ſevere froſt ſet in, when it may be feared a general rot will take place on all the crops that were mildewed. Hitherto the weather has been favourable to the conſumption of this valuable root, and to the feeding of the ſtock thereupon ſupported, though it is ſuſpected the returns will, in few caſes, be equal to thoſe of many preceding years.

The Eſſay which gained the prize offered by the Publiſhers of this Work, for the beſt *Account of the Culture of Wheat*, will be found p. 71. & ſeqq. of this Number. We neglected to mention in our laſt, when announcing a medal of ten guineas value, or that ſum in money, obligingly offered by Sir George S. Mackenzie of Coul, Bart., for the beſt Eſſay concerning the Encouragement which ought to be given to a South-country Farmer who ſettles in the Highlands, that the door will be kept open for ſuch eſſays till the 10th April next, when judgement will be pronounced. Though Sir George is pleaſed to continue the CONDUCTOR as judge of the reſpective merits of ſuch eſſays as ſhall be tranſmitted, a mark of his eſteem which calls for the greateſt acknowledgements, yet it is proper to ſtate, that the opinion of ſome other gentlemen, eminently qualified for judging concerning ſuch matters, will be taken in aſcertaining the merits of the ſeveral eſſayiſts. This is meant to be done, ſo as every idea of partiality may be avoided; and it is mentioned here, ſo as competitors may reſt ſatisfied that juſtice will be exerciſed when their papers come under examination.——*Jan.* 27.

EXTRACTS FROM PRIVATE CORRESPONDENCE,

SCOTLAND.

Inverneſs-ſhire Quarterly Report.

THE grain crops of this diſtrict turn out fully as productive as was expected, though the quality is inferior to that of laſt year's growth. There will be a ſufficient quantity for our own conſumption, beſides ſome oats for exportation to the ſouthern diſtricts. Preſent prices are, 30s. for Wheat, 25s. for Barley, and 15s. for Oats. Oat-meal is 22s. to 24s. per boll of nine ſtones. Barley ditto 18s. per boll of 10 ſtones, both

both 17½ lib. avoirdupois; and Hay 10d. per ſtone of 22 lib. Winter-ploughing is well advanced, though we have had greater falls of rain during the laſt month than for the twelve preceding ones.

Turnips have not hitherto ſuffered from froſt; and the butcher market is well ſupplied with excellent beef at 5d. to 6d. per lib. The graſs mutton is by no means good, and none of the turnip-fed ſheep are as yet ſlaughtered. The wet weather has injured the ſheep flocks conſiderably; and many of them are in a worſe condition than uſual at this ſeaſon.

The excavation of the Caledonian Canal goes on briſkly; but nothing is juſt now doing at the locks. Above 40,000l. has already been expended. In the month of October laſt, the value of lands taken for the canal, at the eaſt end of Lochneſs, was ſettled by Juries, except thoſe of two gentlemen who accepted the offers made them: the prices were from 15l. to 157l. 10s. per acre. The Juries likewiſe determined the proportion of damages to be given to tenants, which is deducted from their rents; and a compenſation is given for houſes and fences, where ſuch were occupied or injured.——*Jan.* 15.

Banffſhire Quarterly Report.

The operations of this quarter have been carried on under very favourable circumſtances,—a tract of mild weather continuing through the autumn, that even exceeded the moſt ſanguine expectations. Vegetation received little check till a late period of the ſeaſon; and cattle were maintained without doors beyond the ordinary time of houſing; of courſe, little grain was thraſhed; but, from trials now made, oats are found to yield well, where early ripening took place; but where that proceſs was retarded, both oats and barley are very defective; and as a conſiderable proportion of the crop will be of this deſcription, produce muſt be found, upon the whole, to be below an average. Preſent prices will by no means pay the expence of raiſing; and it muſt appear ſtrange in other diſtricts, that no money has been received for grain in this county, for crop 1805, at the preſent date, but by farmers who are under the neceſſity of ſelling at theſe very low prices: Oats, 11d. per ſtone, or 13s. 6d. per boll; Barley, 1s. per ſtone, and a trifle more if it exceeds 18 ſtones; Oat-meal, in retail, 13d. per peck of 8 lib. Dutch. Some wheat ſold early in the ſeaſon at 30s.; but, at preſent, there is little ſale at any price. This ſtatement does not correſpond with the high price of labour and land-rent. Some farms recently ſet at 30s. and 35s. per acre, twelve miles from any town, and a conſiderable proportion thereof outfield; a diſtinction well known yet in the county: but how this can be ſupported, remains as yet a ſecret. The favourable ſeaſon induced many farmers to lay down an unuſual extent in wheat; but however advantageous this may ultimately prove, it is rather hazardous in ſuch a climate as this, and where a great proportion of the land is of poor quality. An extenſive cultivation of this article, from the dung it requires, would interfere with the turnip huſbandry, which has been conſiderably increaſed within theſe few years.

The management of this root is well underſtood here, the drill ſyſtem being now univerſally adopted; and as cattle are the only ſupport of the farmer at preſent, turnips muſt neceſſarily be one of the firſt objects of his attention. Cattle are in fine thriving condition, there having been no froſt as yet to affect the turnip. Butcher-meat 6d. per lib., and not expected to be plentiful.——*Jan.* 17.

Wigtonſhire Quarterly Report.

THE favourable weather which we long enjoyed, proved beneficial to field-work, though very inconvenient to many, as it deprived the mills of water, the ſupply in this narrow country being very precarious in moſt ſituations. Meal was become unuſually ſcarce; but the abundant crop of potatoes prevented this from being greatly complained of; for whether or not it is owing to our near vicinity and frequent intercourſe with Ireland, this valuable eſculent is uſed in greater quantity here, as an article of food, than in many other diſtricts of Scotland.

Our few wheat farmers are exceedingly pleaſed with their ſeed-time; and, till of late, the braird was uncommonly promiſing. But, about a month ago, the weather underwent a complete alteration, and rains and winds have prevailed; particularly, a violent gale from the north-weſt, which continued, though with unequal fury, from the evening of Thurſday the 9th current until the evening following, and occaſioned much damage both on ſea and land. Many trees were blown down, houſes unroofed, and barn-yards rendered deſolate.

Hitherto froſt has ſcarcely interrupted the progreſs of the plough; ſo that field-work may be conſidered as pretty well advanced. Meanwhile our grain markets are flat, and moderate prices only are expected. A buſhel of oats, weighing 40 lb., is ſuppoſed to be worth no more than 3s. The relative value of common and potato oats ſeems now to be determined by weight alone; and it is obſerved by ſome, that potato oats, of the preſent crop, have not attained the ſame degree of comparative maturity that common oats have done, the latter having ſuffered leſs than the former from the irregular temperature of the ſeaſon. Bear has for ſome time been a falling article; and few ſales made of late;—3s. 6d. per buſhel is perhaps about the preſent rate, where the grain weighs not under 47 lb. per buſhel. Wheat may be about 7s. Potatoes are not worth ſhipping, being ſold at the trifling price of 6d. per buſhel. The weight of a buſhel of potatoes is underſtood to be from 56 to 60 lb. Notwithſtanding of all this, land rent and wages continue upon the advance; and the competition for farms was never briſker. The moſt experienced and judicious farmers are unable to account for theſe things, and acknowledge that *their* calculations will no longer apply; but they good-naturedly recommend to adventurers, now that no *data* can be diſcovered, to truſt to the growing proſperity of the country, and cloſe with proprietors at random!!——*January* 20.

Letter

Letter from Upper Annandale, 21ſt January.

'THE former part of this quarter was extremely favourable to the huſbandman. The plough was much employed, and the weather very ſuitable; ſo that a great deal of land has been turned over. The intervals of hard froſt were employed with advantage, in leading out manure from the farm yard, and in making up the neceſſary compoſts. The drought has proved unfriendly to the operations of irrigation, which have been put off to a later period than ordinary, and are now going on under ſeveral diſadvantages: but this branch of huſbandry is not ſufficiently attended to in this diſtrict; it prevailed much more extenſively, before the introduction of lime as a manure; but was then chiefly directed towards grain, whereas it ought rather to have graſs for its object. The wheat does not appear very forward here; probably owing to the drought in October and November.

'Cattle and ſheep were in excellent order, when the late ſtorms came on. The ſnow covered all the hills, and was not only deep, but alſo plated or cruſted with froſt; which effectually prevented the ſheep from digging, and ſent them down in thouſands to the vales. There was little to be obtained there; indeed, except ſome grounds that were covered with rough heath, it was only a morſel picked off broom, or other accidental buſhes, that they could find to ſubſiſt upon, at the rate of a ſhilling per ſcore, every night. A more general removal from all the ſheep farms, has ſeldom been known. In ſuch a time, what a capital figure does a plentiful ſupply of hay make!

'On the 10th January current, being Friday, during the hurricane, the barometer ſtood at $27\frac{6}{10}$ inches; and was never ſeen ſo low, in my recollection. I noticed that it ſtood at $27\frac{1}{12}$ths, on Thurſday the 10th and Friday 11th November 1803. The ſnow began to melt at the breaking up of the late ſtorm, in the vale, when the thermometer ſtood at 33°; but the top of the higheſt mountains did not appear to undergo any thaw, till the thermometer had riſen to 39°; and when it fell, yeſterday, to 38°, new ſhowers of ſnow appeared on Hartfell, and other mountains.

'Cattle are generally in good order here. The rearing and management of theſe uſeful animals is exceedingly improved within theſe ten or twelve years. Every perſon has ſome turnips; and many of them a few potatoes alſo, for their cattle. Owing to the benefit derived from theſe roots, young cattle are now, generally, as large and good at the age of two years, as they uſed to be formerly at the age of three.

'Markets for grain and meal have fallen. Barley is at 4s. 6d. per Wincheſter buſhel, and oatmeal at 2s. 4d. per ſtone, wheat at 7s., and a little above. The prices of ſheep continue good; black ewes, deliverable May next, have been beſpoke at from 21s. to 25s. each; hay is at 9d. and 10d. per ſtone of 24 lb., and looking up; labour of men, per day, 1s. and victuals; a cart of lime, the draught of one horſe, coſts, at Moffat, 14s.; a cart of coals 14s.; a cart of peats

3s.;

3s.; a cart of old dung (exclusive of carriage) from 3s. to 5s; the daily labour of a horse and cart is 5s.

'A distemper has appeared among many turnips, over a great extent of country, whatever situation, soil, and manure they grew in. Many have a blackness at the heart, which increases, and converts all into a soft pulp, excepting the rhind or outer bark. There may be one in a hundred in some fields; and in others, twice that proportion. Having run out of Swedish turnip seed this year, I applied to the shops, and the result is a different and most inferior turnip, that runs up quick to seed, and forms a poor root, resembling rape more than Swedish turnip. Luckily I have seed of the true species, obtained some years ago from Mr Stewart of Hillside, and always producing, in every season, the true Swedish turnip.'

The following Thoughts on the present Rate of Land Rent, are extracted from a Letter sent us by a Farmer of great Experience.

'The unlucky and unaccountable start which took place, October 1804, in the grain markets over all the island, seems to have occasioned a rise of land rent, which threatens ruin and misery to every one who shall embark at this time in agricultural concerns. I say, unlucky; because the interim benefit thereby gained by many individuals, will not, in the most distant degree, compensate the evils which have already followed. The price of grain, for two years previous to the above period, had been much reduced; and the ideas which many people formerly entertained, that the nominal value thereof would advance in direct proportion as that of money was depreciated, were, in a great measure, viewed as visionary, and not to be depended upon. Hence the proprietors of land were beginning to lower their expectations, and disposed to receive offers on reasonable terms; but the productive 1804, and the immense advance on every article of rural produce, restored former notions, banished every doubt and fear with regard to their truth, and caused an instant rise of rent, at least to the extent of 25 per cent., which was given with equal confidence as if prices had been insured or guaranteed. It is an established maxim with me, that the price of grain never has been, nor never will be, regulated by the value of other articles; and, would the bounds of a private letter suffice for such a description, numerous reasons might be assigned in support of this maxim. Nor can I consider the produce of the last four years as furnishing proper *data* for calculating an average of years to come, notwithstanding the superior style in which cultivation is generally executed. The seasons of late have been more than ordinary favourable in this northern part of Britain, which is evidenced by the produce of the four past years having more than doubled what I have more than once had upon this farm for four years running. Twelve bolls of wheat, in many instances sixteen bolls per acre, have, of late, been obtained; but can such prolific crops be taken into any sober calculation, or permanently depended on? And can the prices of the preceding year, or even those of the present one, be acted upon when averages for a lease of many years endurance are to be ascertained? I presume they

they ought not; and yet, it would appear, that many have truſted to ſuch fallacious guides, and been led, like by a 'will of the wiſp,' into myres and faſtneſſes, out of which they will with difficulty be extricated.

'It alſo appears to me, that the increaſed and increaſing value of labour is altogether overlooked by our modern valuators, though ſuch will ultimately cut deep into the amount of produce. The money which I paid laſt year to ſervants, came within 3l. of what my rent was when I firſt entered to this farm, nor is there the ſmalleſt proſpect of any abatement under this head, nay, rather the direct contrary is certainly to be dreaded. The very public burdens which now lye on farmers, and which, till lately, they knew nothing about, are a kind of rent of themſelves. In ſhort, how the profeſſion can be ſupported under the preſent ſtate of rent, labour, and taxes, is a problem which wiſer heads than mine muſt determine.'

Berwickſhire Quarterly Report.

The weather during this quarter has, in general, been dry and mild in a very uncommon degree. November, which had more the appearance of the month of April than the aſpect it uſually wears, was ſo dry throughout, that many people continued ſowing wheat till the cloſe of the month, ſo that every patch of ground adapted for winter wheat has been got ſown, and all harrowed in the beſt order. Vegetation has, as yet, met with no material check; early wheats and young clovers are looking well, and ploughing is in a forwardly ſtate.

The ſeveral grain crops are turning out nearly as eſtimated in laſt report. Good turnips have let about 6l. and 6l. 6s. per Engliſh acre; they have hitherto ſtood the winter without injury, and the ſtock feeding on them is in a thriving ſtate.

Markets have experienced little variation ſince the commencement of the quarter. Good Beef, in retail, has been 7d. and 7½d.; Mutton, 6d. and 6½d. per lb. Dutch. At Berwick market, January 18th, prices were,—Wheat, 44s. to 47s.; Barley, 22s. to 25s.; and Oats, 17s. to 21s. per boll of ſix buſhels. Day-labourers are getting 2s. per day; but there being a great demand for hands to make the new line of poſt-road between Ayton and Berwick, an advance may be expected. On the 15th of November laſt, the mercury in the barometer ſtood at 30.43 inches, and on the 10th of January current, it ſtood ſo low as 27.57 inches; extremes which never before occurred in the courſe of our obſervation.——*Jan.* 23.

Moraythire Quarterly Report.

The harveſt in this county was cloſed under favourable circumſtances; and young wheats, notwithſtanding the variable weather of the laſt ſix weeks, look uncommonly well. Contrary to general expectation, the Wheat of laſt crop is of very tolerable quality, weighing 62 to 63 lb. per firlot, and ſelling for 25s. per boll; Barley is rather inferior,

ferior, only weighing 17½ ſt. Dutch per boll, or 76 lib. avoirdupois per firlot, and ſelling at 21s.; Oats are good, and find ready ſale at 16s. per boll;—all ſorts for money down, and preſently lofted or ſhipped off by the merchants. Heritors, and ſuch farmers as have lofts, and agree to keep on their corn until March and April, obtain, and are entitled to higher prices; and there will be a conſiderable quantity of grain, particularly oats, to ſpare from Morayſhire during the enſuing ſpring and ſummer. The ſtack-yards were never known to bulk better at this ſeaſon; and admitting that the produce ſhould not exceed the uſual average, which, perhaps, it may not, the advantages reſulting from the immenſe quantity of fodder are incalculable. Hay is plenty, ſo are potatoes; of both, ſuch quantities were ſcarcely ever collected in this county; but both, at preſent, are nearly unſaleable.

Turnips in general are but a middling crop, and many fields are now offering to ſhoot, owing to the long tract of open weather which we have had. It is fortunate for the feeders of ſtock, that both potatoes and hay can be eaſily obtained to carry on their cattle until the graſs ſeaſon ſets in, or dealers from the ſouthward come forward; for here feeding to the butcher is totally out of the queſtion. Our winter ſtock conſiſts of two and three year old ſtots; and ſuch a conſiderable number of choice cattle will be found in this diſtrict, laid in at prices, perhaps 10 *per cent.* under laſt year, as will render it an object to purchaſers to viſit us. Land rent continues to advance, ſo do ſervants and tradeſmen's wages. Our county roads, which have ever been bad, are now to undergo a thorough repair; the great poſt road is to be made turnpike, the croſs ones continue to be ſupported by a commutation of ſtatute labour. His Grace the Duke of Gordon, with ſome Gentlemen in the county, have bought the village of Burghead, where they are building an excellent harbour, centrical for the corn and other commerce of the county, and eminently uſeful, as a wind-bound ſtation, for veſſels going up the Moray Firth. It is believed they can reach that place when, with ſtrong gales of weſterly wind, even Cromarty Bay cannot be made.

The Morayſhire wheat boll contains 88 Scotch pints, and is about 7½ per cent. better than four Wincheſter buſhels. Barley and oats contain 128 ditto ditto, and five firlots are 3 *per cent.* leſs than a Wincheſter quarter.——23. *Jan.*

Aberdeenſhire Quarterly Report.

The weather during this quarter has on the whole been excellent. Severe froſt has not prevailed, nor ſtorms of any kind, for a long duration; ſo that it may with truth be declared, that field work of every deſcription was rarely ſo far advanced at this ſeaſon, or ſo perfectly executed. Turnips, an important article in this diſtrict, continued to grow till Martinmas; and will furniſh a full ſupply of winter food for live ſtock. Feeding of cattle has gone forward with ſmall interruption; and prices given by the butchers have been from 8s. to 8s. 6d. per ſtone Amſterdam, ſinking the offal. Sheep, from the moiſtneſs of the ſummer,

mer, did not fatten well, and of courſe the market for them has hitherto been dull. Grain turns out, under the flail, better than was expected by the moſt ſanguine farmers; though ſales have been ſlow, and at reduced prices. A good many old oats remained in this county, and were bought up in the end of autumn at 19s. and 20s. per boll; but now, only 16s. to 18s. are given for the beſt of this year's produce. The ſtack-yards, to the eye, are not much diminiſhed; and labour has varied little in value ſince laſt report.—23*d January.*

Mid-Lothian Quarterly Report.

THE ſeaſon for ſowing wheat having continued good to the very laſt, the huſbandman had an opportunity of getting every particle which he intended put into the ground in fine order; and the continued good weather allowed the young plants to come up freely before winter commenced.

Since about the middle of laſt month the weather has been uniformly changeable; hardly two days alike; froſt has been generally accompanied with ſnow, and freſhneſs with rain; hitherto vegetation has met with little check; and ſome of the firſt ſown wheats are thought rather forward.

Grain of laſt year's growth may be deemed a fair average crop. In ſome inſtances, common Oats are ſmall in the kernel, but they give better at the mill than their appearance would indicate, which may be attributed to their being ſo well ripened, and even hardened, on the foot, before reaping. Prices are certainly as low as even a ſordid manufacturer could well expect.

The butcher markets are very full; indeed too much ſo to afford a fair recompenſe to the turnip-feeder. To ſteer clear of this glut, ſome farmers are beſtowing their turnips upon their wintering ſtock of cattle, which probably is a more certain mode of uſing them.—23*d January.*

Extract of Letter from Rev. Mr Findlater.

'I beg leave to ſtate, that the workmen at La Mancha quarry were induced to try a ſhot in a horizontal direction. The *fake*, or bed of limeſtone, was 22 inches thick; the horizontal bore was entered a foot below the ſurface; penetrated betwixt 12 or 13 inches; and had, in this length of bore, a decline of 2 inches, ſo that the bottom of the hole was 14 inches below the ſurface. It was charged with betwixt 3 or 4 inches of gunpowder; and the remainder of the hole poured full of ſand, as formerly deſcribed. The exploſion ſhattered the rock to the diſtance of 4 feet inward, and 3 feet on each ſide of the bore, to the whole depth of the *fake*. I could not attend perſonally; but this account I had from Mr Hill, tutor in the family to whom I delegated the overſight of the proceſs, who ſince informed me, that the quarriers uſe indiſcriminately the perpendicular and horizontal blaſts.

'It ſeems to me a happy invention;—but it is amazing how ſlowly ſuch improvements travel. It is an undoubted fact that, in a diſtrict of Wales,

Wales, through which too a public road paſſes, inoculation for the ſmall-pox had prevailed for time immemorial, even before Lady M. W. Montague wrote on that ſubject, though the practice had never found its way, till then, beyond the bounds of that diſtrict.'

Extract of a Letter from the Diſtrict of Carrick.—January 24th.

'THERE is no part of the duty of your correſpondents that is attended with more difficulty, than to give you an accurate Agricultural Report; there is certainly none that requires more caution and fidelity, in order not to miſlead either the farmer or conſumer. I look upon it, in fact, as a matter of conſcience, and conſider myſelf as giving a judicial report.

'This ought more eſpecially to be the caſe, when there are any circumſtances that tend to induce a ſuſpicion that there may be a deficiency, either in quantity or quality of agricultural produce, becauſe in theſe caſes the public mind is apt to be alarmed, and unworthy prejudices and recriminations to be excited and propagated, betwixt two claſſes of people who cannot ſubſiſt without the mutual aid of each other. Under a feeling of delicacy of this ſort, I ſhall proceed to give you an account of this part of the county at the preſent time.

'The weather, during the end of the laſt, and the beginning of the preſent quarter, was uncommonly fine, and for ſuch a length of time as very ſeldom happens at that ſeaſon of the year in this climate. It is ſcarce poſſible to ſuppoſe a finer wheat ſeed time. For more than a month paſt, the weather has been in the oppoſite extreme. Rain and ſtormy winds have been almoſt inceſſant, with only a very few days of froſt. The fears entertained reſpecting the laſt crop would appear to have been but too well founded. What oats have hitherto been thraſhed out do not appear to equal former years. The ſame number of ſheaves do not produce an equal quantity of grain; and the ſame grain does not give the ſame quantity of meal that it uſed to do. Little of the wheat of laſt crop has yet been manufactured; and as for bear and barley, leſs of it is raiſed than uſed to be, on account of the high malt duty.

'The price of grain has been pretty uniform during the currency of this quarter, with a high probability of an advance. Wheat from 30s. to 32s. the boll, of 4 Wincheſter buſhels; Oats 21s. to 24s. the boll of 8 buſhels; Bear from 35s. to 38s. do. Oat meal has been generally ſold in retail, in the market of Ayr, at 2s. 8d. the ſtone; and there has been no complaints hitherto of want of any of theſe articles, but, on the contrary, the market has been pretty regularly ſupplied. The Carrick Farmer Society, which is compoſed of a ſet of reſpectable men, has of late adopted the patriotic reſolution to eſtabliſh a corn market, which it is hoped will much contribute to the good of the community at large. Butcher meat is in plenty, and at ſuch a price as ought to indemnify the feeder. Beef is from 10s. to 12s. the ſtone of 24 pounds. In the county town of Ayr, mutton is ſomewhat lower

er. The chief advance is in horſes, which are in great demand, and at ſuch extravagant price, as muſt conſiderably add to the farmer's expence. The wages of ploughmen are in proportion to their reputed abilities. In ſome inſtances they are ſaid to be as high as 10l. for half year, with lodging and victuals. Maid ſervants are from two guineas to 3l. 10s. for the ſame period. With all this additional expence, and the accumulated and increaſing expence of public burdens, the demand for farms is as great, if not greater, than ever, and at a very great advance of rent, which, it muſt be acknowledged, is a ſymptom either of the increaſing proſperity of the county, or of a ſuperior mode of management; and perhaps it may be conſidered as the joint effect of both.'

Fifeſhire Quarterly Report.

DURING a harveſt remarkably favourable, crops of all kinds were got into the barn-yard in fine condition; and the different grains appear, when thraſhed, to be in general of good quality. The market, however, for them has by no means been briſk, and has gradually fallen ſince harveſt. At this date, beſt barley is 20s. per boll; beſt wheat 31s.; beſt common oats 17s. 6d. and 18s.; potato ditto 19s. Linlithgow meaſure. Oat meal 18s. 4d.; peas and barley meal nearly unſaleable, though at 13s. 4d., and of the fineſt quality. Potatoes 5s. per boll, quality excellent; but, as there is ſmall demand, farmers are obliged to feed cattle with them.

Owing to want of demand, even at the prices above quoted, a very large proportion of the crop remains on the farmer's hand, which, added to the great riſe of rent, ſervants' wages, ſmith and wright work, &c. &c., is tending to bring thoſe, who took farms on the faith of high prices continuing, into very great embarraſſment; and without doubt many farms will again be very ſpeedily in the market, produce bearing no juſt proportion to the rent and expence of cultivation. For the good of the public, as well as that of the farmer, a ready ſale and equal prices, without much fluctuation, is greatly to be wiſhed.

The weather, ſince harveſt, has been favourable for ploughing, and in wheat ſeed time was excellent, which permitted much to be ſown. The young plants are thick and equal. Not much froſt or ſnow has yet prevailed; but the new year ſet in wet, and continues ſo with high winds. The moſt active farmers ſtore a part of their turnip crop, ſufficient to laſt during any probable ſtorm to be expected; and in good weather cart from the field, in preference to ſtoring a whole crop. The ſeaſon has been ſuch as not to injure the turnip, few or none being hurt by the froſt.

Manufacturers have full employment, and there is no complaint of want of work in any claſs.——*Jan.* 25.

Angus Quarterly Report.

THE moderate weather, which concluded the harveſt quarter, continued

nued into winter, and gave the diligent farmer ample opportunity for carrying forward every operation neceſſary and requiſite for a new crop; of conſequence, theſe operations are ſo far advanced as will make the work of ſpring a matter of eaſy accompliſhment. Though wheat be only a ſubſidiary article, attended with conſiderable coſt, there has been a good deal of it ſown in the county this ſeaſon; ſome of the firſt ſown rather luxuriant, the laſt of fair promiſe. No froſt till the firſt of December, and none, ſince, of ſuch intenſity or continuance, as to injure any production of the field; the returns of it pretty frequent, but not above three days at a time. Turnip in a healthy ſtate, provender of every kind plenty, and hay of moderate price. Cattle markets rather dull than cheap. Abundant ſupplies of every kind of meat, about 6d. per lib., which would have been reckoned high not long ago; but cuſtom and neceſſity have a wonderful effect in transforming and reconciling the public mind. Much accommodation is afforded to the whole county from thoſe markets called *Croſts*, of which there are three every week during the winter, viz. at Brechin on Tueſday, Forfar on Wedneſday, and Kirriemuir on Friday; and particularly, at Forfar, there is a weekly ſhew of cattle, more or leſs, till the uſual ſpring markets open over the country.——*January* 25.

Letter from Glaſgow, January 27th.

'THE weather, at the end of harveſt, being remarkably fine, a much greater quantity of wheat has been ſown in the neighbourhood this ſeaſon than uſual. Many farms are nearly half laid down with that grain; a circumſtance which our huſbandmen had no idea of a few years ago.

'The importation of corn into Clyde for theſe laſt three months has been very inconſiderable; only about 2000 bolls of wheat from Canada, and a few cargoes of oats from Ireland; but, from the quantity of grain now raiſed in this part of the country, every ſpecies of it is plenty, and prices of late have ſomewhat declined. Potatoes are alſo in great plenty, from 6d. to 8d. per peck of about 42 lib. Annexed you have a ſtate of our market.

'State of Glaſgow Markets, January 27th.

Dantzic Wheat	39s. to 42s	per boll Linlithgowſhire meaſure.
Foreign Red ditto	32s. — 38s.	
Scotch New ditto	30s. — 36s.	
Ditto —— Barley	23s. — 26s.	per boll Stirlingſhire do.
Engliſh ditto	29s. — 30s.	
Scotch New Beans	21s. — 22s.	
——————— Peas	20s. — 21s.	
Potato Oats	22s. — 24s.	
Small, or Common do.	18s. — 20s.	
Iriſh Wheat	30s. — 33s.	per boll of 240 lib.
Ditto Mealing Oats	23s. — 24s.	per boll of 264 lib.
New Oat Meal	20s. — 21s.	per boll of 140 lib.

Banffſhire

Banffshire Quarterly Report, No. 2.

THOUGH the laſt harveſt was very fine, and the crop got into the yard in the beſt ſtate, yet grain of all kinds is inferior in quality to that of laſt year, owing, in a great meaſure, to the quantity of rain which fell in the filling ſeaſon. Oats ſeem to be the grain that *ſtands beſt up*, both in quantity and quality, and may be reckoned an average crop; eſpecially in the inland part of the county, where they are conſidered as the ſtaple commodity. Barley in general is light; but the quantity on the ground is found to be conſiderable. Wheat is alſo generally deficient in quality; but the quantity from the ground is not amiſs, and the bulk of ſtraw is very great. Some, after fallow highly prepared, is ſcarcely worth thraſhing; but what was ſown after clover lea, is of good quality, with ſcarcely an exception. This valuable grain, for ſome years paſt, has been ſown to conſiderable extent in this county, and is ſtill increaſing, eſpecially in Lord Findlater's eſtate along the coaſt. Some farmers in that diſtrict have ſown a very great proportion of their farms in wheat, and, as yet, have ſucceeded to their expectations. Although ſome crops failed laſt ſeaſon on land too highly prepared, owing to the great quantity of rain which fell, yet this ought not to be a motive for relinquiſhing the culture of that grain, as it is apprehended barley, under the like circumſtances, would probably have failed to the ſame extent.

Portſoy is the principal market for the grain of this county; and, in favourable years, large quantities are ſhipt from that port to England, and the ſouth of Scotland. The oats exported are almoſt all procured from the upland parts of the county, little of that grain being ſpared by the coaſt-ſide farmers. On the other hand, almoſt all the barley is got from the farmers along the coaſt, as alſo all the wheat. The oats bought at Portſoy are in general good mealing grain, though they have not ſo fine an appearance as thoſe grown in earlier climates, being much mixed with black oats, and of themſelves dark coloured. This year the quantity exported will be conſiderable, and the quality about that of an average, ſay from 13 to 14 ſtones Amſterdam per boll of 128 Scots pints. The barley of the maritime diſtrict of the county is well known to be ſuperior to any in the north of Scotland, and nearly approaching to that of the beſt grain counties in the kingdom, weighing, in ordinary years, from 18 to 19, and ſome fine parcels 20 ſtones Amſterdam per boll, although the grain of this year will not weigh ſo much. Lord Findlater's farm barley is a good ſample, and well known to moſt corn merchants in Scotland. The quantity of wheat exported is in general but ſmall; but laſt year it was pretty conſiderable, and of a quality probably equal to any in the two kingdoms. There will be a quantity of picked wheat ſhipped at Portſoy in the ſpring, of good quality, the merchants having rejected that which is bad.

After the harveſt was finiſhed, grain of all kinds ſoon fell below the prices of the preceding crop, and is now very low, particularly barley.

The merchants have now adopted the plan of buying by weight, which is by far the moſt equitable mode, as it allows a proportionate price to the farmer, who has been at the trouble and expence of raiſing good grain and dreſſing it well; whereas, by the old mode of ſelling by meaſure, when a briſk demand took place, ſuch as laſt year, the ſlovenly farmer often obtained as good a price for his coarſe half-dreſſed corn, as he who had been at more pains.

The month of November having given very fine weather, allowed the wheat ſeed to be laid down and finiſhed in the beſt ſtyle, and it has a very promiſing braird. Turnips are good in general, having improved much during the fine weather in the end of autumn. Cattle fell in price in October, which made many remain on hand that would otherwiſe have been ſold, and at ſame time made ſeveral people purchaſe more than their ordinary ſtock of winterings. This cauſe, together with the good crop of turnips and plenty of ſtraw, occaſions a greater number of good cattle to remain in this county for ſpring ſale than uſual.—*Jan.* 27.

Perthſhire Quarterly Report.

THE grain crops of this county turn out equal to an average, and prices of late have declined conſiderably. When new wheat was brought to market, in the end of harveſt, it ſold for 38s. to 40s., bakers being in want of it to eke out their old ſtock. Seed-wheat gave 45s. The price has ſince fallen to 31s. and 30s. The market for new barley opened at 32s., owing to a demand from the licenſed diſtillers on the Highland ſide of the line. But that being ſoon ſatisfied, and the Low-country diſtillers not chooſing to buy at ſuch high rates, the price gradually fell to 21s. for common barley,—22s. for the Lincolnſhire variety. There has not been ſo much variation in the price of oats. The common kinds ſell for 17s. 6d. The potatoe ſpecies is bought up in conſiderable quantities for the diſtillers at 19s. and 19s. 6d. From Bald's Tables it appears, that our cuſtomary meaſure for barley, flour, and wheat, is three *per cent.* better than the Linlithgow ſtandard. The ſupply of all kinds of grain in our market on Friday ſeemed fully adequate to the demand. We had a middling crop of clover and rye-graſs; but two weeks of bad weather, which fell out in hay harveſt, injured part of it in a ſmall degree. Hay ſells in Perth at preſent at 7½d. per ſtone of 22 pounds. The ſeaſon has all along been very favourable to the turnip crop. There being a ſufficiency of moiſture at ſeed-time, no part miſſed; and the genial weather after harveſt, enabled the late ſown ones to continue growing till the end of November. Some fields that had been rather too early ſown, were exceedingly mildewed; but, ſo kindly has the weather been, that no loſs has been ſuſtained on that account. Of late years, this branch of huſbandry has extended conſiderably in the Lowlands of Perthſhire; but there is little probability of its long continuing to increaſe in the ſame *ratio*, unleſs ſome other method of diſpoſing of the produce is deviſed. The population of this part of the

the country has been greatly augmented; and the uſe of butcher meat become more general in every claſs of inhabitants; yet the ſupply is fully ſufficient for the increaſed demand. Indeed, many intelligent growers of turnip already conſider the expenditure of that article, in rearing ſtock, as a more profitable mode of application than in fattening beaſts. Perhaps the day may come, when fat cattle and ſheep will be ſent alive, by water carriage, from this country to the metropolis, and large commercial and manufacturing towns of England, as is the practice in ſome parts of Ireland; or clean quarters may be packed in ice and conveyed to a diſtant market, in faſt ſailing veſſels, as is done in our own country with fiſh. However ridiculous this laſt project may appear at firſt ſight, it cannot be deemed more impracticable, than was that of carrying raw ſalmon in a freſh ſtate to London, when firſt ſuggeſted to Mr Richardſon by Mr Dempſter. Beef is 7d.; Fat Mutton, 5d. to 6d.; but much Highland mutton is annually ſold in Perth market, about this ſeaſon, at a rate conſiderably lower; the ſheep there being greatly reduced in condition, owing to the ſnow lying cloſe on the hills, while we have fine weather in the Low country. Pork is 5d. to 6d. per Amſterdam lib. —*Jan.* 27.

Dumfries-ſhire Quarterly Report.

THROUGH the winter months there has been much variety of weather. November preſented a continuation of the good autumn, which allowed the operations of the field to be carried on with great advantage. December, though not ſo favourable in that reſpect, was particularly ſo for ſtocks of ſheep and cattle. The light fall of dry ſnow in that month, which covered the heath and paſtures only in part, was ſuch as ſhepherds wiſh for, to confirm the health of their flocks. The preſent month has given weather unfavourable in the extreme for all purſuits and intereſts of the farmer. The falls of ſnow and rain, with high winds, have been exceſſive, and with changes of froſt and freſh almoſt daily. For a few days about the middle of the month, the frozen ſnow, though not very deep, threatened deſtruction to the ſheep ſtock, without a proſpect of relief by driving them to the lower grounds as uſual in times of ſtorm. Some ſtocks were fed with hay. Thoſe who had not ſuch proviſion would inevitably have had much loſs, if a ſudden and unexpected change of weather had not come on. A few hours of a ſoft ſouthern breeze ſpotted the ground, and a few days gave entire relief.

The winter wheat ſown here ſeems more extenſive this ſeaſon than uſual, the extreme high price of that grain, for the laſt and former year, having induced many farmers to ſow it in upland ſituations not very highly cultivated; and whether it is from a peculiarity in the ſeaſon, or from a quality not formerly known here in wheat, it has grown to a conſiderable degree of perfection. Whether this may turn out more advantageous for the farmer in the end, is a different and doubtful matter, but may be deſerving of attention and inquiry.

The prices of ſheep and cattle, through the autumn, and till Novem-

ber, continued on the increaſe; but the dealers who held on till December, and carried their lean ſtocks beyond Yorkſhire, it is believed, loſt a great part of their former gain. Sheep put on turnip, and ſold off before Chriſtmas, brought good prices, and paid the farmer; but that ſeems not to be the caſe now. The month of January has added little to the weight of the carcaſe; and the ſame weight does not bring the price it did in November. This fall, it is ſuppoſed, is owing to the uncommon numbers carried to market. Beef and Mutton bring from 4d. to 5d. the lib. of 16 oz.; Pork in carcaſe, 5s. 2d. the ſtone of 14 lib.——*Jan.* 28.

Eaſt-Lothian Quarterly Report.

THE weather, which was favourable in autumn, continued dry and mild, with little variation, till the beginning of December, ſince which it has been inconſtant in the extreme, rarely two days ſucceeding each other of equal temperature. Notwithſtanding this inconſtancy, field-work has been but partially interrupted, and little arable land remains unploughed, except the clover leas, which ſeldom are broken up ſooner than February. To plough ſuch fields earlier in the ſeaſon, as they are eaſily harrowed, is by many people conſidered to be improper management, for it ſubjects them to injury from the heavy rains, which, in a greater or leſſer degree viſit this diſtrict before the commencement of ſpring ſeed-work. Perhaps at no period was Eaſt-Lothian expoſed to greater inconvenience from want of moiſture, than in the months of November and December laſt. The ſprings were in numerous caſes completely dried up, and many people with difficulty could procure water for their beſtial. Even at this day, the ſupply continues to be but ſcanty, which circumſtance has proved vaſtly detrimental to the owners of water thraſhing machines, and will occaſion much after inconvenience in the preparation of dung, eſpecially on large clay-land farms, where a great ſtock of ſtraw is raiſed, and few turnips are cultivated.

The markets have been fully ſupplied with grain through the quarter, and ſales regularly made, to any extent, though at prices conſiderably reduced. The wholeſale merchants, of late, have purchaſed pretty briſkly, and contributed to preſerve the ready money market from being ſurfeited. Stack yards continue much fuller than uſual, though in moſt caſes it requires a greater bulk of ſtraw to produce a given quantity of grain, eſpecially of wheat and barley, than in the two preceding ſeaſons.

The rate of rent has lately mounted up with aſtoniſhing celerity, and the value of labour ſeems to be treading faſt upon its heels. Theſe circumſtances undoubtedly prove that the proſperity of the country has increaſed; though they are by no means ſure tokens of future proſperity. Were a reference, however, made to paſt times, it would be found that a conſtant dread of high rents and expences, has occupied the minds of huſbandmen, from the earlieſt period to which agricultural reſearch can be extended; and as ſuch fears have hitherto remained unrealized, it is to be

be hoped that the preſent and ſucceeding generations will paſs through the ordeal without ſuſtaining any injury; and that the art of huſbandry will continue to be carried on with increaſed vigour and ſucceſs.

It is a matter of ſurpriſe with many people, that whilſt the ready-money market for grain at Haddington is annually on the increaſe (a good proof of which is to be found in laſt Number of this Magazine) very little attention is beſtowed to the arrangement of the markets, or to the conveniency of dealers who attend them. The markets are held in the open ſtreet, as has been immemorially the caſe, though it might be ſuppoſed that the increaſed value and importance of the trade, would juſtify the magiſtrates in providing more eligible accommodation; and they are every one of them opened at the ſame hour, which cauſes a hurry and buſtle, often a loſs to thoſe concerned, that might eaſily be avoided. Beſides, the market hour, in the winter ſeaſon, is much too far advanced in the day, which cauſes it to be nearly dark before buſineſs is finiſhed, whilſt people who attend have many miles to travel. The Magiſtrates of Haddington have lately erected a moſt elegant butcher market (the beſt in North Britain, without exception) and for this they are entitled to much praiſe; but why ſhould improvement be confined to one branch of municipal police, which confeſſedly is not of the greateſt importance, and denied to others which, without diſpute, are of ſuperior magnitude? Were two ſeveral courts fitted up for the ſale of grain in convenient places; and were different hours appointed for the opening of each, as we have witneſſed in ſeveral Engliſh towns, it is highly probable that an additional quantity of grain would be preſented, which would add to the revenue of the good town, whilſt, at all events, facility in buſineſs would be promoted, and merited attention ſhewn to the ſellers and purchaſers who attend the market from all places of the country.——*Jan.* 28.

Roſs-ſhire Quarterly Report.

The weather having become favourable in the latter end of October and beginning of November, allowed the remains of the harveſt to be gathered in in excellent condition; and after much perplexity, extra expence and trouble, the crop was ſecured in a ſound and wholeſome ſtate. A continuation of the fineſt weather ever remembered, during the whole of November, enabled every perſon to get their wheat ſown in capital order. Perhaps there is double the quantity ſown this ſeaſon that ever was before in the county of Roſs, laſt year excepted. It has every where made a fine braird.

Owing to the very genial weather of November, early ſown turnips run (or ſhot) very much, whilſt the later fields got on to be fair crops. As yet there is no appearance of rot amongſt them. The ſtocks that are conſuming them, on the whole, made good progreſs during November; but this and the bygone month having been attended with very changeable weather, ſheep, in particular, have almoſt done nothing. Very little ſtock is fed in this diſtrict for the butcher, there being no

extent of a fat market equal to the quantity that can be fed. The turnips are moſtly conſumed by well choſen young ſtots to ſell to the drovers in the ſpring. Thoſe who referred purchaſing their winterers till the November markets, had more to pay for them than if they had bought in October, cattle markets having concluded with a briſk demand. Good ſtots coſt fully 8s. per Dutch ſtone, finking the offal.

Now that a complete trial of the crop has been had, the general opinion is, that wheat is equal to an average in quantity, but inferior in quality. Other grains will not come up to an average, either in quantity or quality. Very little has yet been done in the corn trade with us. A few ſtacks of wheat have been ſold at 30s. per Linlithgow boll; and one or two perſons have ſold their barley at 24s. and 25s. A cargo or two of country oats have been ſhipped for London, at 20s. per five firlots. But the whole of theſe prices may be conſidered as nominal, from the very limited extent of the tranſactions.

A monthly corn market was lately eſtabliſhed at Dingwall; but from the dull ſtate of the trade, nothing can be ſaid to have been yet done. It is thought well of by many, who believe that it will induce merchants to come from Inverneſs and the adjoining counties, becauſe they will have a certainty of meeting the farmers of the diſtrict in a body. It will likewiſe have the effect of facilitating buſineſs, as the farmers will then have an opportunity of getting information as to the ſtate of markets, &c. which will of courſe inſpire them with confidence in ſelling. Formerly the buſineſs was done principally by agents riding through the country, which was a laborious and teazing job. The farmers were not unwilling to ſell, but declined doing ſo till they were acquainted with the markets. This they had good reaſon to do, as they occaſionally were taken the advantage of, by agents appearing and buying from them, before they were aware of a riſe having taken place. A few of the regulations of this market may be mentioned.

1ſt, When a bargain is made, the ſamples are carried to the clerk of the market, who is to regiſter the bargain, and ſeal the ſample-bag, marking it with a reference to his regiſter.

2d, If the grain in bulk ſhould not be agreeable to the ſample, at the time of delivery, the bargain to be null and void, and the ſeller to be liable to proſecution.

3d, At the time of regiſtering, a fee of one farthing per two bolls ſhall be paid to the clerk, one half by the ſeller, and the other by the buyer.

4th, The ſamples, in all caſes, to remain with the clerk.

The county is much indebted to Sir George Mackenzie of Coul, for his ſtrenuous exertions in eſtabliſhing and patronizing this inſtitution; and it is earneſtly hoped he will have the ſatisfaction of ſeeing it attended with ſucceſs.

The improvement of the country goes on ſlowly; principally owing to a want of capital devoted to the purpoſes of agriculture. There is a little doing in building, and a little in incloſing. Several gentlemen and

farmers

farmers are marling pretty briſkly, and with ſucceſs; lime is ſcarcely uſed. It may however be ſtated, that moſt of the gentlemen have got, and are getting, good houſes to themſelves; and it is to be hoped, after they feel the comfort of being well lodged, they will then think of doing ſomething for their tenants.—28*th January.*

Stirling ſhire Quarterly Report.

THE fine weather with which the autumn quarter concluded, continued during the beginning of winter. The month of November was uncommonly mild. Some froſts occurred, and ſome ſhowers of ſnow fell, in the courſe of December. It is only ſince the beginning of January, that winter has ſet in with all its horrors; and, from that time till the preſent date, we have had frequent alternations of ſnow and rain, often accompanied with violent ſqualls of wind. In the lower parts of the county, the ploughing was very far advanced at an early period; the wheat, from the favourableneſs of the weather, ſprung up equally and vigorouſly; the braird ſtill has a promiſing appearance, notwithſtanding the violent ſtorms which occurred during January, as it was commonly ſhielded from the froſts by a protecting cover of ſnow. This circumſtance, however, while it benefited grounds under tillage, was very inconvenient to the lands in the higher diſtrict, occupied as ſheep paſturage, and produced the neceſſity of hay-feeding, or of driving the flocks to fields infeſted with furze, or broom, or heath.

The prices of black cattle have undergone little variation. At the markets which occurred in the cloſe of the year, both young ſtock and lean ſtock continued to ſell at ſuch high prices, as almoſt to preclude the poſſibility of profitable returns to the grazier or feeder. It is only with ſheep that any change has taken place, and there the depreſſion has been very great. Holding ſtock, which, a few months before, uſed to ſell at 18s. per head, with difficulty fetched 15s.; and fattened ſheep, when driven to either Glaſgow or Edinburgh markets, met with few purchaſers, and conſequently ſold at low prices. From comparing the ſtate of the ſheep and black cattle markets, the opinion begins to prevail, that the ſyſtem of ſheep farming has been carried to an exceſſive extent, and that its evil conſequences are now beginning to be apparent.

The prices of grain have for ſome time paſt been on the decline. Barley, which, at the cloſe of autumn, was bought up readily at 35s. per boll, has lately fallen to 25s. The cauſe of this great depreſſion ſeems to be, not a large importation of Engliſh barley, nor even a ſuperabundance of Scotch produce in the market. From the early commencement of the diſtilleries, and from a ſcarcity in the market, ariſing from the previous conſumption of the preceding crop, prices naturally ſtarted uncommonly high for the firſt fruits of this crop. As ſoon as the uſual ſupply was brought to the market, a depreſſion neceſſarily enſued; but the reaction was ſo far from violent, as hardly to reduce the price below a fair medium. This ſeems to be its preſent ſtate; and ſymptoms are now apparent, to induce the belief that prices will, as in

ordinary years, rise a little as the season advances. Oat-meal sells currently at 21s. per boll, but in some of the neighbouring districts 24s. have been given.—*Jan.* 28.

Letter from Haddington, February 3.

'We had less or more snow every day last week, accompanied with frost, which arrested every field operation, except the carting out of manure. Within doors, thrashing the crop goes briskly forward; and a greater quantity of grain has been delivered to the merchants, within the past month, than usually occurs in an average of seasons. Almost every farmer being provided with a thrashing-machine, it is in his power to work out his crop at such periods as suits his conveniency; and the number of middlemen or dealers being great, sales can at all times be made according to circumstances. Few counties in Scotland are so well situated, for procuring a constant steady market for grain, as East Lothian; and superior quality gives a preference in its favour difficult to be estimated.

'At our last market, prices remained tolerably steady, especially those of Wheat and Oats. Barley had a dull sale, the demand being lessened; so had Peas and Beans, which appear in numerous quantities. The average price of decent Wheat might be 32s. per boll, though several parcels sold at 33s. to 34s. For Barley, 24s. and 24s. 6d. were given; for Potato Oats, 19s. 6d. and 20s.; and Common Oats, as usual, were about 2s. per boll lower; Peas and Beans sold from 15s. 6d. to 17s. For the information of your English readers, it may be necessary to state, that a Linlithgow boll of wheat, peas and beans, is a trifle more than four Winchester bushels; and that the boll of barley and oats is nearly equal to six bushels. If such proportions are held in view, any error in calculating prices will be exceedingly trifling.'

ENGLAND.

Lincolnshire Quarterly Report.

Grain markets remain something stationary; and decent prices are obtained for all sorts. Wheat may be quoted from 60s. to 75s.; Barley, 32s. to 36s.; Rye, 35s. to 44s.; Oats, 21s. to 26s. all per quarter of eight Winchester bushels. Beef is 7s. per stone of 14 lib.; and Mutton rather higher.

The land rent of this district has not lately been materially advanced, chiefly owing to a great part of it being the property of noblemen and gentlemen who estimate their reputation and character too high to allow them to squeeze and oppress those whom Providence has placed below them. Such reason, that it is the duty of every landlord to put a fair price upon his land, so as the occupier may be enabled, not only to live, but also to rear up a young family, and to place them afterwards in such situations of life as they may be useful members of the state. It

is

is obvious that oppreſſion will not be exerciſed where ſuch ſentiments prevail; but then, with a different claſs of people, namely, thoſe who have made money by trade, little attention is paid to thoſe liberal feelings, and the higheſt offerer is conſequently the moſt acceptable. There are, therefore, two ſorts or ſcales of rents in this county, for the ſame qualities of land; namely, thoſe paid to the reputable landlord, who wiſhes to ſee every perſon thriving on his property; and thoſe paid to the jobbers, or dealers of land, who look upon a tenant with the ſame eye as a merchant would view a pound weight of raiſins. Under the firſt, rich clay ſoils, that will fatten an ox per acre in ſummer, and feed two ſheep through the winter, are ſet for 40s.; and thin clay ſoils, which will only carry one ſheep per acre in the winter, from 15s. to 18s. Again, rich fen land, capable of producing eight quarters of oats per acre, and to carry good crops of turnips and rape ſeed afterwards, from 25s. to 30s.; and dry or gravelly ſoils, too light for wheat, but qualified for turnips, barley, and ſeeds, at 12s. to 17s. Theſe are the valuations fixed by landſurveyors of judgment and reſpectability, who pay regard to the rate of markets in the neighbourhood, and ſufficiently eſtimate the attendant charges incumbent on the farmer; though adventurers, who deal with the ſecond claſs of proprietors, will give from 60s. to 80s. for the rich clay ſoils; 30s. for thin clay; 40s. to 50s. for the fen land; and 20s. to 30s. for the light ſoils: but people who offer in this way are frequently embarraſſed in their circumſtances, and not to be wiſhed for on any eſtate where good management is exerciſed. Parochial rates are from 5s. to 8s. in the pound, and in ſome places even ſo high as 10s.—*15th January.*

Letter from a Farmer in the Weſt Riding of Yorkſhire. 16th January.

'Your rents are far above ours, and I know not how this is to be accounted for, except from your public burdens being leſs, your labour cheaper, and management ſuperior. I lately valued an extenſive townſhip, for the regulation of poor rates, chiefly belonging to a gentleman who ſets his lands very high; and though in a manufacturing neighbourhood, the beſt dry land was rented at no more than 3l. the ſtatute acre, and down to 40s.; for clay ſoils, from 20s. to 40s. per ditto, with the addition of 5s. to 7s. in the pound of public burdens.

'In the farming diſtricts about Pontefract, Doncaſter, Rotherham, and Barnſley, the beſt dry turnip land ſets for about 55s. per acre, including tithes and all taxes; clay land from 15s. to 35s. per ditto, ditto. But the great eſtates of our nobility do not average more than 20s. per acre, the tenant being charged with all public burdens, which vary in different townſhips, according to the number of their poor; and altogether, ſay for tithes, aſſeſſed taxes, and pariſh rates, will run from 8s. to 10s. per acre upon the average.

'Our corn markets are upon the decline; Wheat, 8s. to 9s. per buſhel; Barley, 4s. to 5s. per ditto; Beans, 5s. to 6s.; and Oats, 3s. 4d. to 4s. per buſhel. Fat cattle are ſteady in price; Beef, from

7s.

7s. to 7s. 6d. per ſtone of 14 lib. ſinking offal; Mutton, 7d. to 8d. per lib. ſinking ditto. The ſeaſon has been very favourable for feeding ſtock till laſt week; the weather has ſince turned wet, with high winds; but turnips have ſtood much better than expected, and fodder of every deſcription is plentiful.'

Northumberland Quarterly Report.

THE weather continued uncommonly fine from the date of the laſt report till the beginning of December; but ſince that time it has been very variable—the froſt and ſnow ſcarcely ever continuing more than three or four days, without a thaw, or a partial thaw, intervening. On the whole, the weather has been favourable for getting forward ploughing, and other operations of the farm, neceſſary to be done at this ſeaſon; but, from the changeableneſs, it is to be feared the autumn ſown wheat will probably be injured.

The turnip crop, which was ſtated in the laſt report to be materially damaged by the mildew, has turned out worſe than was expected; and the apprehenſion of a ſcarcity of this article induces many people to ſend a larger portion of fat ſtock to market than they otherwiſe would have done. Prices have been low for ſome time back; and at the two laſt markets at Morpeth, they declined conſiderably. Preſent prices are, for beef, from 5s. 8d. to 6s. 6d. per ſtone (of 14 lib.) ſink; and for Mutton, 6d. to 6½d. per lib. ſink, which is about a ſhilling per ſtone lower than at the ſame period laſt year. Our corn-markets are alſo below thoſe of laſt year: Wheat is from 7s. 6d. to 8s. per buſhel Wincheſter; Barley from 3s. 6d. to 3s. 9d.; Oats from 3s. to 3s. 8d. But, notwithſtanding ſuch circumſtances, and the great advance on labour, with increaſed and increaſing taxes, the price of land goes on advancing at a rate that, under the moſt plauſible and forced calculations, can hardly be ſuppoſed to leave the farmer even common intereſt for the capital employed. In the ſouthern part of this county, ſeveral farms belonging to Greenwich Hoſpital have been let by propoſal. Two of theſe farms (deep dry loams) containing 500 acres, tithe-free, that were let for 30s. an acre, by propoſal, twenty-one years ſince, are now let for upwards of 4l. per acre. Another, moſtly a mountain ſtock or breeding-farm, the preſent rent of which is 325l., is now let for upwards of 900l.; and the average advance of a number of theſe farms, letat the ſame time and in the ſame way, is about two and a half times the preſent rent. In the northern parts, the advance has been nearly in the ſame ratio. Adderſtone-Mains, containing 390 acres (of which 120 is bog or marſh), let at preſent for 322l., has been lately let, by propoſal, for 1050l. Grindon, containing 1450 acres, (of which one third is thin moory ſoil, and the whole on a clayey ſubſoil), now let for 900l. per year, has been let, in the ſame way, for 2400l.; the tenant to keep every thing in repair, and pay all tithes and taxes, which will not amount to much leſs than 750l. a year more. Such ſpeculations can only be ſupported by the prices of produce not being

ing lower than they have been of late years; but the chances are certainly more againſt than for ſuch a ſuppoſition.——*Jan.* 20.

Eſſex Quarterly Report.

It is difficult to preſent any thing like a correct report at this ſeaſon, the weather having proved ſo unſettled and changeable for ſeveral weeks paſt. On one hand, it has been a fine time for early lambs and late ſown wheats; but, on the other, there is cauſe to dread, that the preſent mildneſs of the ſeaſon will much encourage the wire-worm and ſlug. Several plants of wheat are known to have been already injured, ſome even deſtroyed; and, to take the average of the county, the plants cannot be pronounced good. A few days froſt prevailed in the beginning of winter, and much manure was carted on the young clovers, &c.; but a great deal ſtill remains, in hopes of more froſt. Perhaps a greater quantity of corn has been brought to market than uſual for the time of year. The crop, upon the whole, is productive, though it is not thought that wheat riſes ſo well as the quantity of ſtraw led the public to anticipate. Maltſters are very careful in purchaſing good barleys, many of them being mow-burnt. Live ſtock is dear, particularly pigs, which ſell at a very high rate, owing to the fattening being cheaper than uſual. Clover-ſeed is very precarious as to its produce; ſome of it ſcarcely pays for thraſhing; and, throughout, this article is not a good crop. A vaſt breadth of coleſeed has been ſown and planted this year, in conſequence of the high price it held laſt harveſt. It afforded ſome of the farmers a moſt comfortable and ſeaſonable ſupply, and was found amazingly convenient in carrying them through the expences of houſing their crops. Markets are governed by Marklane, but not altogether of the ſame currency; maltſters and factors endeavouring to buy at ſuch a rate as will indemnify them for their trouble and expence.——*Jan.* 23.

Yorkſhire Quarterly Report.

It appears on trial, that grain, in general, turns out nearly as good and abundant as was expected at harveſt. Wheat and barley, in particular, are fine in quality, and of good produce. They are both ſelling at reduced prices, though it may be preſumed that the thraſhing of theſe grains is not very far advanced, under all the preſent and late circumſtances of weather, &c. Oats and beans are not good; the latter, as alſo peas, not generally dry enough for uſe. Beſt Wheat about 10s; Barley 4s. 9d.; Oats 4s.; and Beans 6s. 3d. per buſhel of Winchester. Potatoes 2s. per buſhel upheaped.

Many of the growing wheats are looking thin and pale, not having yet recovered from the diſadvantage of being ſown, and of beginning to vegetate, in a very dry ſtate of the ſoil. The late and preſent rains will probably ſoon change the ſcene. The breadth of grounds under this grain is greater than uſual.

Turnips are in excellent preſervation, and the ſheep ſeem to thrive well

well upon them, notwithſtanding the heavy rains and ſtorms of wind. The beſt crops are worth about 6l. per acre; Hay 4l. per ton. Young clovers and other ſeeds on the ground look tolerably well.

Fat and lean cattle, and ſheep are ſtill at moderate prices; and the graziers complain of having had an unprofitable year. There is not much proſpect of any great increaſe of demand for fat cattle, from the depreſſed ſtate of the trade and manufactures of theſe parts, and in the county of Lancaſter. Beſt Beef is at 7½d.; Mutton 6d; Veal 7½d.; Pork 6½d. per lib. There is ſome reduction of the prices of horſes.

Farm rents hereabouts are nearly at the following rates per ſtatute acre, including public burdens, viz. Rich clay lands in graſs, 2l.; poor clays, 1l.; beſt loams, 2l.; gravels, 1l. 10s.; ſands, 1l. The hiring of farm-ſervants has not been quite ſo briſk as heretofore.—— *Jan.* 24.

Letter from a Farmer in Wales, January 24.

'Our corn markets, contrary to expectation, have kept ſteady, except that, during ſeed-time, prime ſamples of wheat ſold rather higher than at preſent; but with the millers there is little or no alteration. The current price with them at preſent is from 30s. to 33s. for 168 pounds; if ſold by meaſure, from 12s. to 13s. the Wincheſter buſhel. I have ſold none under 33s., and I this year gain on the weight. The high price has induced many of us to thraſh freely; and I am now of opinion, that prices will not be lower, unleſs there is a more than ordinary importation. Good Malting Barley is at 5s., and ſome as high as 5s. 3d.; Oats 3s.; the Potato Oats, which is but new in this part, at 4s.; Beans and Peas 5s. 6d. to 5s. 9d.; all per buſhel Wincheſter. Butcher-meat is on the advance, and our prices are higher alſo than with you in that article. Good Beef and Mutton is now worth from 7d. to 7½d. per pound, ſinking the offal. We have had a track of ſix or ſeven weeks of almoſt conſtant rain, which has been much againſt our cattle, as very few of us in the Vale keep them in the houſe; their coats have never been dry ſince the rains commenced, till yeſterday; and though the ſeaſon has been mild, I have ſeen the growing wheats have a much finer appearance. The high winds and daſhing rains, in expoſed fields, beat and broke the young plants, and ſo covered them with earth, that at a diſtance they could ſcarcely be perceived: But the fine weather yeſterday brought on a moſt wonderful change, and the fields in the evening had the appearance of May.'

Norfolk Quarterly Report.

The agriculture of a country, at this ſeaſon, offers but few objects of attention to the reporter; and conjecture muſt, in a conſiderable degree at leaſt, be ſubſtituted for poſitive aſſertion. Happily, the contracted proſpect to be obtained is to the farmer at preſent more highly encouraging than he could expect. A protracted harveſt had extended the wheat-ſeed time to an unuſually late period; and ſerious apprehenſions were entertained, that a ſevere opening of the winter might catch

catch the ſeed whilſt in its tender milky ſtate, and deſtroy a conſiderable portion of it. The months of November, December and January, however, having proved mild, and but little chequered with ſevere froſt, the wheat has planted full, looks healthy and vigorous, and ſeems to indicate that it has attained a ſufficient ſtrength of root, to bid defiance to any future ſeverity of wind or froſt. The ſame may be ſaid of tares, and of the artificial graſſes. Turnips which, at the time of the laſt report, were not in a very promiſing ſtate, are much improved by the fine autumnal rains; and ſuch has been the abundance of every ſpecies of food for cattle, that turnips are become now quite a drug; and the ſmall farmer, who has not a ſufficient quantity of ſtock to conſume his own crop, muſt go, cap in hand, to the large farmer, and may think himſelf highly favoured, if he can perſuade him to feed them off without a premium. This abundance of proviſion has alſo kept up the price of lean ſtock of every deſcription. The crop of corn, as predicted in a former report, has proved abundant in quantity, and by no means defective in quality; and, notwithſtanding thraſhing machines and flails have been inceſſantly at work, ſome even before harveſt was finiſhed, the ſtack-yards and fields are by no means yet nearly emptied. Preſent prices—Wheat 60s. to 64s.; Barley 28s. to 30s.; White Peas 36s. to 38s.; Grey Peas 29s. to 30s.; Oats 18s. to 24s.; and Beans 30s. to 32s. all per quarter. Doubts are entertained whether they will maintain, and more eſpecially barley, this value in the ſpring months. The plough has met with ſo little interruption, that the fallow for turnips may receive the benefit, no inconſiderable one, of an extra winter's earth; and the lands deſigned to be ſown with peas and oats are, in general, already prepared for the reception of theſe crops.——*Jan.* 24.

Letter from a Farmer in the Eaſt-Riding of Yorkſhire, January 25.

'SINCE the publication of the laſt Number of the Farmer's Magazine, the weather has been remarkably mild, with little froſt or ſnow; but in the laſt three or four weeks, we have had a great deal of rain, which has completely ſaturated the earth, even where the ſtricteſt attention has been paid to draining; and in conſequence of ſuch heavy and repeated falls of rain, wheats in general look ill, and ploughing ſeems almoſt ſtopped for the preſent. Turnips are in general a fair crop, and eat primely, being remarkably nutritive. The prices for them are upon the decline, owing to the openneſs of the weather; tolerably good ones may be bought at 3l. to 3l. 3s. per acre, which might have been ſold for 4l. to 4l. 10s. per ditto.

'Our lean cattle markets have not been ſo briſk for the laſt two months, as they were this time twelvemonth, by 10 to 15 *per cent.* Lean pigs have been the reverſe, by more than double that per centage. Fat ones are worth 7s. per ſtone; Beef 7s. and ſink; Mutton 7d. per lib. ſink.

'Our grain markets are getting downwards, which is what we have anticipated for ſome time, the produce being tolerably abundant from both the

the flail and the breadth of ground. Wheat looks well when thraſhed; yet the millers and bakers complain of it being much ſprouted, although it has not much that appearance. Had wet weather continued a few days longer in harveſt, I believe we ſhould have had ſufficient ocular demonſtration. The price of Wheat here is 63s. to 66s. per quarter of 8 Wincheſter buſhels; Oats 20s. to 25s. per ditto; Beans 34s. to 36s.; Barley 30s. to 33s. per ditto; the quality of the latter not generally good. Potatoes are abundant; ſo much ſo, that I cannot ſtate any price in the wholeſale, the factors not being inclined to buy for London, and that is the principal market for taking off the large quantities grown in this part of the county. Flax turns out a medium crop, and ſells well, ſay 10s. to 14s. per ſtone of 14 lib. avoirdupois.

'In the laſt letter you had the goodneſs to favour me with, you ſay drilling beans is a favourite ſyſtem in your diſtrict. You will oblige me much, if you will inform me what ſort of drill you uſe; how many Engliſh acres you drill per day; what width you ſet your drills, or how many inches from row to row; whether you drill upon plain ſurface, or upon narrow ridges, in imitation of potato ridges; how many Wincheſter buſhels you drill upon an Engliſh acre; and what is your general produce per ditto. I have uſed Perkins's drill and horſe hoe ſome years, and they are uſed here by many farmers; the practice is to drill beans at 12 inch intervals, and 4 to 6 acres per day can be drilled, and 7 to 8 ditto can be hoed per day, by one man and one horſe. The produce upon good bean land, in a good ſeaſon, will be 40 to 50 buſhels per acre.

'In the November Magazine, a very valuable eſſay is given on ſtoring turnips, which throws more light upon the ſubject than any thing I ever ſaw before: the author is a very valuable correſpondent. A few of us (neighbouring farmers) will be glad to know how and where to get a few pounds of the yellow field-turnip ſeed for the enſuing ſeaſon. Do you think any can be had in your part of the country; and if ſo, can it be got to York by a carrier waggon; or to Hull by ſea, from Leith or Berwick-upon-Tweed? If either can be done, I will ſettle the account through the medium of my bookſeller and the publiſhers.

Letter from London, January 27.

'SINCE laſt report, we have had very little variation in the price of wheat. The rate at which it has been ſold was ſufficient to encourage a regular ſupply, without overloading the market, or bringing any extra ſupplies of flour. The ſtock of foreign wheat on hand has found a ready ſale; and, owing to the moiſtneſs of the weather, even inferior ſorts have come into uſe to mix with the new wheats. The wheats from the ſouth of Scotland obtain better proportioual prices this ſeaſon than uſual, particularly white wheats that are in good condition, and free from ſmut balls: many of them, however, are very defective in this latter point.

'Barleys,

'Barleys, as was expected, have declined considerably in value, although the proportion of that of fine quality is small. As the malting trade is doubtless cramped by the heavy duty with which this article is loaded, and the distillers here are doing but little, the bulk of the ordinary and coarse barleys will remain to be consumed in the different purposes of feed. The general opinion respecting the oat trade has been materially disappointed; for, though the prohibition continues against exporting from the Prussian ports, still our supplies coastwise have been unusually forward and liberal; and prices have been on the decline for many weeks, till within these two market days, when they appear to have found their level for the present. The disparity in the prices of this article is this season very great, owing to the growth of Lincolnshire and the principal oat counties being of spongy ordinary quality, and those from Northumberland and the south of Scotland generally fine. New beans have considerably declined in price, while good old ones have advanced, owing to the soft ordinary quality of the new, and consequent demand for good hard old ones. The general idea of a large crop of peas has been realized; and owing to the very open season, has caused a considerable decline in the price of this article. Boiling peas, which sold so high as 63s., are now not worth more than 43s. per quarter. As we may reasonably expect to have foreign supplies of both wheat and oats as the spring advances, there appears little prospect of prices advancing. And should nothing injure the crop of wheat on the ground, or hurt the sowing of the spring corns; from the liberal supply which we continue to have coastwise, and which there is at present every reason to suppose can be maintained, there appears good ground for believing that prices may be lower in the summer.'

State of London Markets, 27th January.

Wheat - - -	40s. 62s.	66s.
—— Essex and Kent New	66s. 71s.	Fine White 74s. 76s.
—— Scotch - -	62s. 66s.	Fine dry White 68s. 70s.
—— Foreign Red -	40s. 65s.	
—— Petersburgh -	50s. 63s.	
—— Archangel - -	40s. 50s.	
—— White Dantzic -	56s. 66s.	Fine 72s. 76s.
Rye - - -	40s. 42s.	
Barley - - -	25s. 29s.	Fine 34s. 36s.
Malt - - -	68s. 71s.	
White Peas - -	32s. 35s.	Boilers 42s. 44s.
Grey ditto - -	31s. 34s.	
New Pigeon Beans -	36s. 38s.	Old 54s.
New Tick ditto - -	27s. 30s.	32s. Old to 48s. small sized to 50s.
Oats, Long Feed -	21s. 23s.	6d.
—Short Small or Friezlands	24s. 26s.	Fine 27s. 28s.
—Polands - -	22s. 27s.	Fine 30s. to 32s.

NOTICES

NOTICES TO CORRESPONDENTS.

Acknowledgments are due to the Rev. Mr CAMPBELL, Kilcalmonell, for his communications *on Potato Huſbandry*. The numerous experiments made by him to aſcertain the beſt way of cultivating that valuable root, are detailed with a preciſion which muſt render them highly acceptable to agriculturiſts.

The ingenious and elegant *Deſcription of the paſt and preſent ſtate of Forfarſhire Huſbandry*, will do honour to our work. We will be extremely happy to hear often from the gentleman who favoured us with it.

Mr HOWARD's eſſay *on the Management of Live Stock* is very acceptable. So are A. S.'s *Strictures on Sheep Smearing*. Theſe, with the obſervations from Norfolk on *Storing of Turnips*, and M. P.'s Letter *on the Management of Ruta Baga*, will, without fail, appear in next Number.

The eſſay from EDDLESTONE CLUB on the *Jus Dekalus* is founded on principles every day gaining ground among rural economiſts. We will, with pleaſure, aſſiſt the Club in their laudable attempts to batter down this and other feudal abuſes.

Our facetious correſpondent JOG-TROT, who dates his epiſtle from '*Banks of Ayr*,' ſhall be indulged. His ſtrictures on a reſpectable communication are ſevere; but being given with much good humour, deſerve to be imitated by other correſpondents.

We thank the gentleman who tranſmitted a paper *on the Figure in which Trees ſhould be diſpoſed in Plantations*. This ſhall appear as early as poſſible, though, we doubt, not earlier than the month of Auguſt, heavy arrears being due to many other friends.

WILLICH's *Domeſtic Encyclopædia* has not come in our way, otherwiſe the gentleman who mentions a *root-ſteamer* ſhould have been gratified.

A. B. C. JUNIOR *on Ploughing Matches* ſhall be ſubmitted to the conſideration of our readers, though we are not ſure that LEONIDAS will hold himſelf obliged to this bantering correſpondent for his proffered aſſiſtance.

A letter *on the Breed of Cheviot Sheep*. Thoughts *on the Utility of inſtituting Evening Schools for Servants*; and various other papers are under conſideration.

No. XXVI. will be publiſhed Monday 12th May. Articles of intelligence are reſpectfully ſolicited to be ſent on or before the firſt of the month, when that branch will be arranged.

ERRATUM in laſt Number.

In p. 399, third line from bottom, for '*we may conſider ſingular ſucceſſors*,' &c. read '*we may conſider ſuch ſingular ſucceſſors*,' &c.

D. WILLISON, PRINTER, CRAIG'S CLOSE, EDINBURGH.